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ABSTRACT OF

An Address

ON THE

SYMPTOMS WHICH PRECEDE AND ARE ASSOCIATED WITH GENERAL ARTERIO-SCLEROSIS.

(Being the Annual Oration of the Hunterian Society, Delivered on Feb. 20th, 1918.)

BY O. K. WILLIAMSON, M.D.CANTAB., F.R.C.P.LOND.,
PHYSICIAN, CITY OF LONDON HOSPITAL FOR DISEASES OF CHEST, VICTORIA PARK.

IN introductory remarks the lecturer said: I propose on this occasion to consider the means which we have come to possess of recognising the initial stages of the insidious process of one form of general arterio-sclerosis by its various symptoms, especially by the rise of arterial blood pressure, which I shall endeavour to show, and as I would fain believe is generally recognised, as being the cause of the process. I shall deal only with that variety of arterio-sclerosis which is associated with high arterial blood pressure, the hyperpietic form of Sir Clifford Allbutt, recognising, as I do, that the classification of these cases by that most eminent authority is by far the most satisfactory of any which has, so far as I am aware, been suggested.

PATHOGENESIS OF HYPERPIETIC ARTERIO-SCLEROSIS.

The mode of production may profitably be first considered, for if, as I shall endeavour to show, the process be the direct result of high arterial blood pressure it follows that the recognition of that symptom and its effective treatment mean far more than dealing with a symptom of a pathological process which is already established, but may reasonably be considered as a means of prevention of the ensuing consequences. It has been shown by more than one observer that a clinical picture characterised by high arterial blood pressure and attendant symptoms may occur often in one or in recurring attacks, which may pass off perhaps as the result of treatment, and that there may be complete restoration to health. Again, other such attacks if neglected become less and less amenable to therapeutic measures, and finally incurable and associated with obvious signs of arterio-sclerosis. These facts show that high arterial blood pressure is, at any rate, one of the earliest signs of arterio-sclerosis, and, if not a direct cause, is, seeing that it may be made to disappear without arterio-sclerosis resulting, at any rate associated with conditions which give rise to arterio-sclerosis. [Reference was here made to the observations of Boerhaave (1708), Mahomed,[1 2] Huchard,[3] Clifford Allbutt,[4] and T. D. Savill.[5]]

It would seem that the only satisfactory conception of the pathogenesis of hyperpietic arterio-sclerosis, although suggested by Huchard, was first brought forward by W. Russell, yet this author fails to distinguish between this form and the variety unattended by high blood pressure, a distinction insisted upon by Allbutt. Briefly stated, Russell's explanation is that toxic substances (Huchard's muscular excitants) cause a hypertonic contraction of arterioles and arteries, at least up to the size of the brachial, that an increase of pressure in the aorta that is behind the constricted area is thus caused, and which if recurring or continuous leads to hypertrophy of the muscular coat of the arteries.[6]

E. H. Colbeck,[7] in a closely reasoned paper, considers—

"That the morbid changes in arterio-sclerosis represent stages in the operation of a single pathogenetic process which commences with increase of function and consequent hypertrophy of the arterial muscular coat, progresses by way of failure of functional efficiency with degeneration of the muscular substance, and culminates in hyperplasia of the fibrous tissue elements of the arterial wall."

Thus he agrees with Russell in so far as he says that the morbid changes in arterio-sclerosis commence "with increase of function and consequent hypertrophy of the arterial muscular coat." It should be noted that he applies his theory not only to the cases of arterio-sclerosis associated with high blood pressure, but also to those which are not, and that he alone of writers on the origin of arterio-sclerosis recognises Allbutt's distinction.

[The lecturer here referred to certain observations carried out by himself which seem to prove that in hyperpietic arterio-sclerosis not only is the occurrence of the arterial change of later date than the rise of blood pressure, but must be directly attributable to that rise of blood pressure.[8] Thoma's[9] theory of arterio-sclerosis was discussed, the opinion being expressed that it has retained an undeservedly prominent place in medical literature, and the views of Potain and von Basch were alluded to.]

SYMPTOMS OF HYPERPIESIA.

The first of these to consider is the rise of arterial blood pressure. Until comparatively recent years the most reliable method of judging of a rise of blood pressure was by the finger. It is said that Sénac in 1749 described well the character of the hard pulse.

The Pulse of High Arterial Pressure.

Its features are thus admirably described by Mahomed[1]:—

"The pulse of high pressure may have three qualities: it may be long, persistent, and hard. ..... A long pulse means a labouring heart, and is in conformity with the rule given by Marey that the length of the ventricular systole is in direct proportion to the arterial resistance (or pressure). The pulse is called persistent when the arteries are constantly full ..... the vessel can still be recognised by the finger both during systole and diastole; it is always there, we never lose it. ..... The least constant character of the high-pressure pulse is that of hardness and incompressibility. This form of pulse is recognised by its undue length and latent pushing character, which is not at first apparent; it requires firm compression of the vessel for some little time before it becomes evident."

The pulse of high arterial pressure may be either small or large.

In the early stages it is more often small, seeing that the condition is associated with hypertonic contraction, and its very smallness may tend, we shall see, to deceive the observer who relies only on digital examination. The associated arterial contraction and consequent thickening of the arterial wall and diminution in diameter of the lumen cause the artery to be palpable, a fact emphasised by Russell, and such an artery, if the possibility of this condition be not recognised, will be mistaken for a permanently thickened one. The distinction will, of course, be made by the fact that in the case we are considering when, as the result of treatment or for other reasons, the spasm passes off, the thickening will disappear.

Besides the character of the pulse, in virtue of which more force than usual is necessary to obliterate it, another characteristic exists. On gradually exercising with the finger an increasing degree of force it will be found that the amplitude of pulsation or size of the pulse increases up to a point from which further degrees of pressure cause it to diminish.

The pulse-rate may be slow or it may be considerably quickened. As Allbutt says, Marey's rule of the inverse relationship between pulse-rate and blood pressure is often overridden by other factors.

The Sphygmograph.

In regard to the use of the sphygmograph Mahomed[2] thus enumerates the characteristic features of the pulse of high tension:—

1. A pressure above 1 ounce, and sometimes as high as 10 ounces, is employed to develop the pulse-tracing to its greatest extent.
2. The percussion wave is usually well marked and distinctly separated from the tidal.
3. The dicrotic wave is very small and often scarcely perceptible; the vessels, however, are full during the diastolic period and collapse slowly.
4. The tidal wave is prolonged and too much sustained. ..... The most constant of these indications is the prolongation of the tidal wave ..... (Mahomed[2]).

In addition it may be pointed out that the descending limb (as implied by Mahomed) and in rare cases the ascending limb are oblique and the height of the curve is generally low except when the high pressure is due not to increased resistance alone, but to a strong, full systole as well.[11]

Of course the sphygmograph does not measure the arterial pressure. Another point is that anacroty is not infrequent. It may be stated that this instrument has not fulfilled the hopes once entertained with regard to it as an aid to diagnosis, although in skilled hands it is useful for recording results of treatment.

Instruments for Measuring Blood Pressure.

Von Basch and subsequent observers introduced instruments of precision for measuring blood pressure.

Instruments were devised in Italy by Riva-Rocci and in this country by Leonard Hill at practically the same time (1896-97). It is true that the well-trained finger will obtain information about the artery out of reach of the instrument, and that the instrumental indications of pressure in certain cases of arterio-sclerosis associated with high blood pressure are fallacious, but the latter objection does not obtain in considering the use of the instrument for our present purposes.

The use of the finger should be supplemented by judicious instrumental examination, a rise of systolic pressure above the normal, if not accounted for by physiological causes, should excite suspicion of hyperpiesia. A reading above 145 mm., if the patient is below 40 years of age, may be considered pathological, or above 160 mm. if he is over that age, it being borne in mind, as Dr. George Oliver has pointed out, that the figure should be verified by repetition not only on one, but on more than one occasion.

It is necessary to emphasise the importance that persons of and beyond middle age should have their blood pressure measured at intervals, in order that the early development of hyperpiesia may be detected, and that arterio-sclerosis may be thus prevented.

Although we have considered only the question of systolic pressure, it is possible that a rise of diastolic pressure may in exceptional cases be found to occur before the systolic elevation.

It has been observed that hyperpietic patients are more liable than others to critical excesses of blood pressure. This has been pointed out by Pal, Janeway, and others.

Symptoms of Hyperpiesia.

We must now consider other symptoms of hyperpiesia, many of which will be seen to be simply those of a toxæmia.

There may be a heaviness or oppressive fullness in the head, or an actual headache. This headache may be pulsatile in character. Drowsiness, insomnia, fatigue, especially in the morning, sometimes occur, or inaptitude for work and inability to concentrate the attention, this inaptitude perhaps alternating with a mild psychic exaltation, cerebral confusion, despondency, giddiness (especially in the morning), failure of memory, noises in the ears, migrainous or neuralgic attacks, nervousness.

Huchard[3] gives the following symptoms; Local areas of coldness, coldness which may be limited to the lower limbs, to a segment of the limbs, to the knees, sometimes to the upper extremities, more rarely to half the body.

Again, there may be local syncope of the extremities, "rheumatic" pains and cramps in the limbs, with a sensation of local fatigue or of weight, vague pains, paroxysmal pallor of the integuments, especially of the face, a tendency to hæmorrhage may be evident, hæmoptysis or epistaxis may occur, and this epistaxis may be the first symptom.

There may be a tendency to dyspnœa, especially on exertion, to intermittent polyuria. Some of the cases of hæmoptysis have manifestations of rheumatism or fibrous rheumatism. The dyspnœa is accompanied at times by a sensation of vague pain in the chest, and anxiety, sometimes nocturnal in occurrence. There may be palpitation, often accompanied with a vague sensation of præcordial fullness. Haig says that there may be an excess of uric acid in the urine. It is said that a flatulent stomach may be an early symptom of hyperpiesia.[12]

Finally, it may be mentioned that certain symptoms best accounted for by the conception of arterial spasm may occur, but it will be most convenient to deal with these when we come to consider the symptoms associated with actual arterio-sclerosis.

SYMPTOMS ASSOCIATED WITH EARLY ARTERIO-SCLEROSIS.

Although we cannot hope to effect a *restitutio ad integrum* of the damaged arteries, yet by diagnosis and judicious treatment much may be done to prevent the development of the condition, or, if it be more or less localised, to prevent its involving other parts of the arterial system.

The general nutrition is usually good, there is often a tendency to fatness, though some patients are thin. Allbutt says that the countenance is healthy or too florid, or there may be a sallowish ground tint with a splash of ruddiness upon the malar eminences.

In addition to the qualities of the pulse already detailed it may be pointed out that the pulse may show an extra-systole now and then (Mackenzie) or more frequently. There may be paroxysmal tachycardia. Mackenzie[13] finds that the extra-systoles are usually of ventricular origin. The extra systoles may occur at every second beat, in which case the condition must be distinguished from pulsus alternans. The diagnosis between these conditions can be made by reducing the arterial pressure by nitrite when in high pressure cases the pulse becomes regular. Under high pressure as short of disease fatigue of contractility sets in, true pulsus alternans may appear; under high pressure also there may be a string of premature rhythms of the pulse, and on reduction of the pressures to normal regular rhythm may return. You may also get in high pressure cases geminal, triplet, and other curiosities of rhythm.

There may be shortness of breath or a sense of substernal constriction; the patient, too, may be sensible of the heart's action at night, especially when lying upon the left side; or there may be an uneasy aching about the heart.

The heart usually shows the signs of hypertrophy, the apex beat being displaced downwards and outwards, and the impulse forcible and heaving in character.

The first sound is prolonged. This fact was observed by Sibson. There may be a bruit de galop. The second aortic sound is accentuated. Allbutt points out that the accentuated aortic second sound may be due not to increased aortic pressure, but to athero-sclerotic changes in and about the parts at normal pressure.

On the other hand, the hypertrophy may have given way to dilatation. The subcutaneous veins may then be swollen, there is slight œdema of the shins, crepitations or harsh and prolonged breathing at the pulmonary bases, where the percussion note is a little muffled. Thoma points out that œdema arises in association with sclerosis of arteries and veins; it may be a transient shifting œdema of feet or eyelids, according to position. Symptoms of angina pectoris may occur.

Nervous and Mental Symptoms.

As Mott[14] points out, the nervous system, or parts of it, may suffer from partial or complete ischæmia, and the symptoms are due to circulatory disturbances.

The patient, if naturally energetic, is found to have of late lost his elasticity, to have become more sluggish, fretful and despondent, especially early in the day, cheering up towards evening (Allbutt[10]); not only so, but there may be exhaustion following mental or physical exertion. Disturbances of sleep are common, sleep may be uneasy and less refreshing than formerly. Apathy occurs, and torpor is a common symptom. Drowsiness occurs. Allbutt considers that torpor and drowsiness are apt to occur in the daytime. The patient is apt to be unusually susceptible to the action of alcohol and tobacco, which excite and aggravate many of the cerebral troubles (Mott[14]). Irritability of temper may occur.

The higher blood pressure may produce a sense of energy, or even an increased activity. Grave obsession may occur, or the patient may become more and more tempted to rouse himself with wine.

There may be attacks of maniacal excitement or depression.

These are accompanied not infrequently by hallucinations or delusions, so that, as Mott[14] points out, it is not unusual, especially if the patient suffers with slight apoplectic or epileptiform seizures followed by a transient hemiplegia and a progressive dementia, to look upon the case as one of general paralysis. As a rule, these delusions relate to persecution rather than grandeur and exaltation, and the dementia is not nearly so pronounced as in general paralysis; moreover, paralysis when it occurs is usually coarse. The attacks of maniacal excitement or depression are especially liable to occur in persons of insane temperament (Mott[14]). A melancholia may occur amounting to insanity. This condition is, according to Allbutt, usually a phase rather than an abiding derangement. Insanity, however, is not very common.

Pseudo-bulbar or true bulbar paralysis, with spasmodic laughing and crying, is described, also progressive muscular paralysis with fibrillar twitching. There may be Cheyne Stokes breathing at intervals or habitually for months. Vertigo is a common symptom; it occurs especially when a sudden change is made from the recumbent to the upright position. Mott[14] says that in its slight form it may not amount to more than a lack of the feeling of stable equilibrium, often increased by apprehension, and not infrequently associated with tinnitus. Vertigo of labyrinthine origin and the syndrome of Ménière's disease may occur. There seems to be some relationship between blood pressure and the size of the pupil, in that rises of pressure may narrow the pupil.

Localised Arterial Spasm.

We now come to certain clinical phenomena which I believe are the expressions of localised constriction of the arterial branch or branches supplying the affected area, or, as Russell describes them, arterial spasm. Such phenomena occur in other parts of the body besides the central nervous system; in fact, in every part of the body. [The lecturer here glanced briefly at the whole subject, relating Charcot's observations on intermittent claudication.] The symptoms of intermittent claudication in man are the same as those which I shall allude to subsequently, and which were described by Dejerine as "claudication intermittente de la moelle épinière," with certain differences to be mentioned. Intermittent claudication is the forerunner of senile gangrene. When signs of it appear gangrene usually ensues within a few years. The nose, the tips of the ears, and the upper limb and, it is said, the penis may be thus affected.

That localised spasm in superficial arteries may occur is, I think, obvious from cases such as the two following ones.

A woman aged 35 came to me on account of pains in temporal region and vertex of head and in limbs, as well as of "noises in her head." The radial artery gave the impression of being contracted. Blood-pressure reading 115 mm. (systolic). She was somewhat pale. Iodide of potassium in 5 grain doses thrice daily was ordered. A week later blood pressure was 110 mm., she felt better, contraction of radial no longer observed. I record this case merely as an instance of a condition of spasm which passed off probably as the result of treatment.

In a man 73 years old, having marked thickening and tortuosity of superficial arteries, I took a series of simultaneous blood-pressure readings on right arm and right leg by a modification of the Riva-Rocci method, each armlet being connected with same manometer by means of T-piece, patient in recumbent position. One reading gave 145 mm. for arm, 189 mm. for leg, a difference of 44 mm; a later one showed 132 mm. and 145 mm. respectively, a difference of 13 mm.; whilst still later the arm yielded a reading of 140 mm., the leg one of 205 mm., a preponderance of 65 mm. in favour of the leg.

It would be difficult to account for this marked rise in leg reading compared to that in arm by any hypothesis other than by what I think is the obvious one—viz., that there occurred a marked spasm of the muscular coat of the leg vessel at the site of compression, a spasm out of all proportion to any which took place in the arm.

Seeing that the cerebral arteries are, like those of the systemic and splanchnic systems, possessed of a muscular coat, and that it is now granted by physiologists that they possess vaso-motor nerves, and, further, that arteries have been shown experimentally to contract as a result of the direct action of substances circulating in the blood without the influence of the nervous system (Ringer and Sainsbury, also H. H. Dale[17]) it is reasonable to suppose that arterial spasm will affect them like other arteries of the body. The presumptive evidence, indeed, that it does so, and which I will now indicate, seems to be strong. [Cases were here related of spasm of retinal arteries recorded by Noyes,[18] Wagenmann,[19] R. A. Lundie,[20] and Benson.[21]]

Cerebral Seizures due to Arterial Spasm.

The first suggestion of arterial spasm as an explanation of cerebral seizures seems to have been made by Dr. George Peabody.[22]

He brought forward three cases, "not as something new," but as bearing upon the pathology of a condition about which little work had been done. One of these cases was published, and he says in regard to it: "The question is whether death can be caused by this lesion (i.e., arterio-sclerosis), preceded by symptoms of disturbance of brain function, such as hemiplegia, aphasia, &c., without lesion of the brain. I believe that it can."

Dr. William Russell, of Edinburgh, has for many years past insisted on the fact that arterial spasm is the explanation of such cerebral seizures, and those interested in the subject will be well repaid in reading his brilliant and suggestive work.[6]

Russell classifies the cases according as they occur in patients having soft vessels, or, on the other hand, in those in whom the vessels are thickened, and points out that the phenomena are of much graver significance in the latter. He cites instances under both headings, and reminds his readers that homonymous hemianopsia and temporary local paralysis may accompany an attack of migraine. He has also found that in persons with sclerosed or atheromatous arteries the cerebral phenomena are associated with hypertonic contraction of systemic vessels.

Edgeworth describes two cases, and among other conclusions points out:—

"That the hemiplegia may, or may not, be preceded by loss of consciousness or clonic spasm in the subsequently paralysed parts; or clonic spasm may occur, which is not followed by paralysis." Further, that "if paralysis occurs it can be distinguished from that due to a permanent vascular lesion by the non-occurrence of an extensor plantar reflex."

Finally, Osler classifies the cases into three categories:—

"(*a*) Healthy individuals with high blood pressure, but without signs of arterial disease.
(*b*) Patients with well-marked arterio-sclerosis, in whom the cerebral attacks have come on without warning, sometimes as the signal symptom. A majority of my cases come in this group.
(*c*) In advanced sclerosis with cerebral changes, manifested by progressive mental and muscular weakness, all possible types of these transient seizures, including convulsions, may occur. The attacks are most frequent in the aged, but men in the fifth and sixth decades are also affected."

He mentions the following points in symptomatology:—

"The symptoms are extraordinarily varied, but tend in individual cases to repeat themselves in the attacks. Sensory disturbances rarely occur alone, motor paralysis is the most common symptom, and maybe hemiplegia, or only the face and hand or arm may be involved. The paralysis, rarely complete, has a transient character, which with the recurrences give it a peculiar stamp. Complete recovery is, of course, seen in monoplegias and hemiplegias of organic origin, but not in a few hours or in a day. Loss of consciousness is not common in my experience. The diagnosis is based on the existing conditions of high tension, or sclerosis, or both, the slight and transient character of the attacks, and the recurrences."

The two following cases came under my observation:—

CASE 1.—A male, aged 55, came to hospital giving a history of attacks of loss of power in left arm and leg since two months previously. In these attacks, he stated, he becomes dizzy, has headache (chiefly on left side), also has complete loss of power in arm and partial loss in leg, with numbness in both arm and legs, then loses consciousness for about half an hour. On regaining consciousness paresis has passed off. At times, during period of unconsciousness, has passed urine. He has had six such attacks in all. When examined no loss of power, knee-jerks normal. Few dilated venules on cheeks. Brachials thickened and tortuous, radials felt contracted. Pulse occasionally intermittent; blood-pressure reading 185 mm.

CASE 2.—Female, aged 64. History of attacks during which there was some weakness of left hand, with numbness and tingling of left forefinger and thumb. Also mouth noticed at these times drawn to left; a feeling of coldness and numbness of left side of mouth. These attacks were stated to come on suddenly and last for about a week; first attack was, as far as recollected, four years before she was seen. During next two and a half years several more attacks, and since then six further attacks. She gave a history of getting up at night to micturate. Patient found on examination well nourished and of high colour. No loss of power in arms or in face muscles; mouth was, perhaps, drawn slightly to left. Knee-jerks normal. Superficial vessels not obviously thickened, blood pressure reading approximately 210 mm. Heart's apex beat in sixth left interspace, approximately in nipple line. No murmurs; aortic second sound accentuated. The superficial veins (especially on left side) of chest were enlarged.

In Case 1 the transient character of the attacks of paralysis, and the recurrence within a comparatively short time of the same clinical picture several times repeated, excludes the diagnosis of hæmorrhage, thrombosis, or embolism. I would urge that the most reasonable explanation of the symptoms is that there occurred a spasm of the arterial branches supplying the particular part of the motor area affected, a spasm which caused a temporary interruption to the arterial blood-supply, with consequent loss of function, but that the circulation became re-established in time to prevent the occurrence of thrombosis in the vessels, followed by softening of the corresponding brain substance, a result that must otherwise have infallibly occurred.

In Case 2 the seizures, although they passed off by no means so rapidly as in Case 1, were very numerous, and all of them apparently presented the same characteristics; this, taken together with the fact that when examined she showed practically no abnormal signs in the nervous system, again serves to exclude the three organic vascular lesions.

My experience agrees with the statement of Edgeworth that loss of consciousness or clonic spasm may occur. In view of Russell's experience and of the facts alluded to above in regard to migraine, I submit that we must amplify Osler's classification with a fourth heading to include cases without signs either of arterial disease or of high blood pressure. [The most serious objections to the theory have been urged by Clifford Allbutt. These were here considered.]

Spasm of Arteries of Spinal Marrow.

If we admit the evidence so far in favour of arterial spasm it seems reasonable and not more than logical to extend the conception to explain certain symptoms connected with the spinal cord and other areas of the body.

Dr. Russell[6] has pointed out that an attack of angina pectoris, perhaps itself due to arterial spasm, may owe its incidence to a reflex action originating after a meal, for it is known that following the ingestion of food, a contraction of the systemic arteries takes place, a subject that has been worked at by George Oliver. [It was noted that an incident in John Hunter's life,[23] a forewarning of the fell disease from which he died, is at any rate thus explicable.] If so, is it not at least possible that we have here that which may have led investigators' minds towards the theory of arterial spasm?

As regards nervous symptoms which are explained by arterial spasm there exist besides those already mentioned transient attacks of amnesia, aphasia, and speech embarrassment.

French neurologists, especially Dejerine,[24] Sollier, and Grasset,[25] described a syndrome explicable by intermittent spasm of the arteries of the spinal marrow.

Dejerine speaks of this as affecting a man in the prime of life, who notices that fatigue of one of his lower limbs, rarely of both, occurs on exertion more quickly than usual. The limb becomes a little heavy, with a feeling of tension and cramp, the phenomena cease when he stops walking. After weeks or months the symptoms increase. He notices difficulty in moving the limb after exertion, and the distance which he can walk before this occurs diminishes. When at rest, however, practically the only sign the patients show is a certain degree of exaggeration of the tendon reflexes.

The onset of weakness is announced by abnormal sensations in the limb affected. There is no intense pain. The abnormal sensations, like the paralysis, disappear completely on resting. The patellar reflex, if exaggerated when the patient is at rest, becomes still more so after walking. Sometimes the extensor plantar reflex occurs after walking, but it disappears during rest. Sensibility is unaffected. There is frequent desire to micturate and genital symptoms.

He calls the condition "claudication intermittente de la moelle épinière." It is almost always syphilitic.

The affection, if untreated, always leads to spastic paraplegia. The diagnosis from intermittent claudication of the lower limbs is made by the fact that the pulsation in the arteries of the lower limbs is always intact in the spinal cord affection, and also that there is a complete absence of vaso-motor trouble, the deep reflexes are exaggerated, and extensor response of the toes is sometimes present, and bladder and genital symptoms are present. Prognosis is most serious, but the condition can be cured completely if recognised early and energetically treated.

Grasset explains by the theory of intermittent claudication paroxysmal and Cheyne Stokes respiration, giddiness, bradycardia, and tachycardia. He describes also a syndrome affecting the posterior columns of the spinal cord, the symptoms of which are paroxysmal, painful constriction of the thorax, abdomen, or of both, giving according to localisation the impression of a pseudo-angina, a gastralgia, or of an abdominal or tabetic crisis.

Other Symptoms.

Time does not permit me to speak further of the application of the theory of arterial spasm to explain symptoms in other parts of the body, such as attacks of abdominal pain, &c.; but surely if we once admit the existence of arterial spasm in one locality of the body we cannot reasonably refuse the application of the theory to explain symptoms in other parts. I would emphasise the fact that this hypothesis is of no mere academic interest, but if we follow out the logical treatment depending upon it, holds out full hope of the prevention of most dire effects.

Thoma speaks of the appearance of the pulse in the retinal arteries on ophthalmoscopic examination as an indication of a diminution of elasticity of their wall. He says that spontaneous hæmorrhages in the fundus oculi are amongst the first indications of angio-sclerosis. The

indications observed in the small retinal arteries are a change in size; they are thickened, have a double outline, and compress the veins at the crossings, which appear kinked; besides hæmorrhages, greyish-white opacities and streaks of exudation may be seen.

Respiratory Symptoms.

The patient may have unaccountable bronchial cough and expectoration, and often a true winter cough. There may be paroxysms of dyspnœa, in which the face becomes pallid. Pulmonary œdema in these cases of paroxysmal dyspnœa is liable to occur; it may set in swiftly and overwhelm the patient suddenly as a fulminant event (Allbutt[10]). The signs are not always at the bases. It is always to be feared in the paroxysmal dyspnœa of high pressures. Allbutt speaks of a more or less paroxysmal kind of dyspnœa which may come on during rest. Latent high pressures may be revealed by an attack of dyspnœa at a high level above the sea. Pneumonia is not uncommon in hyperpietics.

Digestive Symptoms.

The patient may exhibit biliousness. The bowels are uncertain; they may be either costive or loose. Dyspeptic trouble may be an early symptom of arterio-sclerosis. In patients addicted to high living the bowels are sluggish, windy, and colicky (Allbutt). In some patients the liver is fullish and rather tender, in others one sees a mere insufficiency, with poor nutrition, failing strength and digestion. These cases are also subject to irregular glycosuria. In some of the cases hæmorrhages from the stomach or bowels may occur, but they are not very frequent. Colic, belching, distension, insomnia, fatigue, and tingling in the limbs may be partly attributable to sclerosis of the abdominal vessels.

A whitening of the stools may occur, these may float in water, or variable traces of sugar in the urine may show vascular decay in the area of the pancreas. It is said (Chalmers Watson) that examination of the urine and stools in arterio-sclerosis on Cammidge's method is often positive; this may point to sclerosis of the arteries of the pancreas.

There is a kind of paroxysmal vomiting like that of migraine, but in which there is no headache or visual disorder. This is attended with high arterial pressure, from which, however, in its initial stages arterio-sclerosis is probably absent. Uterine hæmorrhages may be only due to arterial disease in the organ.

Intercurrent, transient phases of high pressures occur under more than one set of conditions, and have already been referred to (Pal, Janeway, and others); they may occur in elderly persons.

The urine may be lateritious or alternatively profuse. Generally speaking, the involvement of the kidneys will be indicated by the passage of large quantities of urine of low specific gravity, frequently necessitating rising at night, and the urine may or may not contain albumin or casts.

In making the diagnosis little more need be said beyond emphasising the fact that the symptoms of hyperpiesia may be mistaken for those of neurasthenia, and that a careful personal and family history is of great importance.

CONCLUSION.

If you think that I have spent over-long in dwelling upon the pathogenesis and means of early recognition of one form of general arterio-sclerosis I would remind you of the appallingly large number of valuable lives prematurely maimed or cut off by it in their prime.

I have not considered etiology on this occasion, but it may not be out of place to mention that the ingestion of food, especially protein food, in excess of the body's requirements, has much to say in the development of the process. The civilised world is setting its teeth in the most critical stages of the struggle for all that is worth living for against Teutonic barbarism, and in the face of any trials present and prospective in regard to food shortage, may it not be opportune and altogether salutary to remember that there is at least one cheering aspect of the picture? This very abstinence, apart from the mental discipline involved, cannot fail to exercise a notably favourable influence on the incidence of one of the most insidious and crippling disease processes of modern middle life.

Bibliography.—Mahomed, F. A.: Some of the Clinical Aspects of Chronic Bright's Disease. Guy's Hosp. Reports, 1879. 2. Idem: Royal Med. Chir. Soc. Trans., 1874, Etiology of Bright's Disease. 3. Huchard: Maladies du Cœur, 1899, i., 71. 4. Allbutt, Clifford: Senile Plethora, Trans. Hunterian Soc., 1895-6. 5. Savill, T. D.: Brit. Med. Jour., Jan. 23rd, 1897, p. 188; Path. Soc. Lond. Trans., 1904. 6. Russell, W.; Arterial Hypertonus, Sclerosis, and Blood Pressure. 7. Colbeck, E. H.: Pathogenesis of Arterio-sclerosis, Practitioner, Feb., 1908. 8. Williamson, O. K.: Clinical Observations on the Influence of the Vessel Wall on (so-called) Arterial Blood Pressure Readings, Proc. R. Soc. Med., 1909; THE LANCET, 1909, i., 1250. 9. Thoma, R.: Virchow's Archiv, 1888, xciii., 581; Thoma and Kaefer, ibid., 1889, xcvi., 1-60, also civ., cxii. 10. Allbutt, Clifford: Diseases of the Arteries, including Angina Pectoris. 11. Sahli: Diagnostic Methods. 12. Riesman and others: Amer. Jl. Med. Sc. April, 1913. 13. Mackenzie: Brit. Med. Jour., Oct. 20th, 1906, and other papers. 14. Mott: Allbutt and Rolleston's System of Medicine, vi., Arteriosclerosis. 15. Pal: Gefässkrisen, Leipzig, 1905. 16. Charcot: C. R. Soc. Biol., Paris, 1858; Progrès Méd., Paris, 1887; Bull. Méd., Paris, 1891, v., 1105. 17. Dale, H. H.: Jl of Physiology, xxiv., No. 3. 18. Noyes: Text-book of Diseases of the Eye, 1890, p. 547. 19. Wagenmann: Arch. f. Ophthal., 1897, xliv., 219. 20. Lundie, R. A.: Ophthal. Rev., May, 1906. 21. Benson: Trans. Eighth Int. Ophthal. Congress, 1894, p. 81. 22. Peabody, G.: Contribution to Symptoms and Pathology of Endarteritis Obliterans, Practitioners' Soc. of New York, 1886. 23. Palmer, J. F.: Life of John Hunter. 24. Dejerine: Rev. Neurol., Paris, 1906, xiv., 341. 25. Grasset: Ibid., xiv., 433.

SOME IMPORTANT PRINCIPLES WHICH DETERMINE THE RELIABILITY OF THE WASSERMANN REACTION.

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THE introduction of the Local Government Board's venereal scheme has resulted in an increased demand for Wassermann tests, as it is recognised that the reaction is a reliable control to the diagnosis and treatment of syphilis. It is therefore of the utmost importance that the test done should be trustworthy. The performance of the Wassermann reaction, however, requires a high degree of technical skill together with sufficient scientific judgment, the outcome of experience, on the part of the worker.

In the United States of America, on the continent, and to a less extent in this country some discussion has arisen over the discordant results obtained when the same sera were examined for the Wassermann reaction by different laboratories. Although inexperience on the part of the worker plays an important part in the production of these variant results, of greater importance are the many inherent difficulties of the test. It is not surprising that such discordant results should be common in Germany, as the original Wassermann technique is the favourite method used there. Accordingly, any advance in technique has been limited. Happily, in this country it is not so, and considerable advances and perfections have been introduced into the Wassermann technique. In the original technique the amboceptor alone is standardised, and such a quantity of complement (normal guinea-pig serum) is used as will ensure complete hæmolysis in the controls even should the complement be a weak one. Thus at one time one may have a minimum of complement in the test and at another a considerable excess. It is quite possible under these conditions that the same serum may at one time react positively and at another negatively.

In spite of the many inherent difficulties of the Wassermann test, discordant results can be greatly reduced, if not entirely abolished, by the adoption of a method which standardises all the reagents used in the test. By the adoption of such a technique that bogey known to all who perform the test as a "bad day" will be entirely eliminated, and the performance of the test becomes almost mechanical, since nothing is left to chance. The secret of this lies not in the adoption of a certain technique, but in the recognition and practice of certain important principles. The actual technique by which these principles are put into operation is of secondary importance. These principles are:—

(1) *Adoption of a Constant Antigen.*

Soon after the discovery of the Wassermann reaction it was found that the saline extracts of congenital syphilitic livers varied considerably in antigenic properties. Further research showed that alcoholic extracts of these and other organs could be used with equal success. This must be regarded as one of the great advances both as regards the theory and practice of the test. Various tissue extracts were tried, and a preference seems to have been given to heart-muscle extracts—a tissue rich in lecithin. Browning and McKenzie then showed that the addition of cholesterin to the antigen is capable of increasing the specific action. These workers added the cholesterin to a lecithin extract which they had obtained from ox liver. More recently Sachs suggested the addition of a little cholesterin to all organ extracts already in use. But the quantity of cholesterin suggested by Sachs was found in a series of observations made by Dr. P. Fildes and myself to be much too small. We therefore worked out a new formula, and this is now almost universally used in this country and in America, but is frequently referred to as Sachs's antigen. In Germany, where Sachs's formula was of course accepted, the antigen is not largely used. A series of comparative tests between our antigen and several others showed that the formula worked out and suggested by us was more satisfactory than those hitherto in use and fulfilled the requirements of a "standard antigen," which would give comparable results in the hands of other workers. The preparation of this antigen is exceedingly simple,[1] and when made up according to

[1] THE LANCET, 1916, ii., 751.

directions it is found to show no variations either in its antigenic or inhibiting properties, as can be seen from Tables A and B, which give the results with 12 of a series of antigens tested.[2] In testing the inhibitory power, each dilution of antigen was tested against the amount of complement (2½ units) used in the Wassermann test.

Further experiments showed that this inhibition is almost entirely due to the alcohol, and that the antigen in the dilution we use, 1 in 15, has practically no inhibitory power at all.

TABLE A.—*Inhibitory Power.*

Antigen dilutions.	Antigen No—											
	13	14	15	16	17	18	19	20	21	23	23	24
1 in 16	0	0	0	0	0	0	0	0	0	0	0	0
1 ,, 10	±	0	0	0	0	+	0	±	0	0	0	0
1 ,, 8	++	++	++	++	++	++	++	+++	++	++	++	++
1 ,, 6	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++
1 ,, 4	+++⊥	+++⊥	+++⊥	+++⊥	++++	+++⊥	++++	+++⊥	+++⊥	+++⊥	+++	++++
1 ,, 3	++	++	++	++	++	++	++	++	++	++	++	++

In Table A and Table B the + signs are proportional to the degree of inhibition of hæmolysis. Thus ++++ = no hæmolysis in the sense of a complete positive Wassermann reaction ; +++⊥ = trace of hæmolysis.

TABLE B.—*Antigenic Powers.*

Syphilitic serum.	Antigen No—											
	13	14	15	16	17	18	19	20	21	22	23	24
0·075 c.cm	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++
0·062 ,,	++++	++++	++++	++++	+++ +	+++ +	++++	++++	++++	++++	++++	++++
0·042 ,,	+++⊥	+++⊥	+++⊥	+++	+++	+++⊥	+++⊥	+++⊥	+++	+++	+++	+++
0·031 ,,	++	+++	+++	++	+++	+++	+++	+++	++	+++	++	++
0·023 ,,	+	++	++	+	+	+	+	+	+	+	+	+
0·017 ,,	0	+	+	0	0	0	0	0	0	0	0	0

Further, no appreciable difference in antigenic power was observed when the antigens were diluted rapidly or slowly.

Our experience during the last six years has more than confirmed our original claims in regard to this antigen—an experience confirmed by a large number of workers who have adopted it.

(2) *Titration of Complement in the Presence of the Antigen.*

As has been indicated, many continental experts have been content to take the complement in the normal guinea-pig as being more or less constant in strength in spite of the fact that it has long been known that this is not so. To Boas, however, must be given the credit of clearly showing the practical value of titrating the complement before each test. With this improvement the test gained greatly in sensitivity and specificity, as is indicated by the results he obtained in comparison with those of other workers.

In spite of the adoption of this improvement, however, certain complements were still found to be unsatisfactory, although they had an active hæmolytic titre. The explanation of this was given by Browning and McKenzie when they demonstrated that certain complements are peculiarly sensitive towards the antigen. In virtue of this peculiarity, although of good hæmolytic power, they appear to lose their hæmolytic power after contact with the antigen. To overcome this difficulty each complement must be titrated out in the presence of the antigen actually used in the test. The recognition and adoption of this principle has greatly increased the specificity and delicacy of the test devised by Dr. Fildes and myself.

We claim that this feature allows of an accurate estimation of the complement in spite of any possible variation as regards sensitivity to antigen, while the failure to recognise this principle will greatly interfere with the accuracy of any Wassermann test. It is certain that the estimation of the minimum hæmolytic dose (M.H.D.) of the complement by itself is not an index as to how that particular complement will behave when incubated in the presence of antigen. Under such circumstances the greater part, if not all, of its hæmolytic power may be absorbed. Thus the empirical 2½ units or M.H.D. of complement (or whatever amount an author may consider necessary for his test) may be quite insufficient unless they were determined in the presence of antigen. Other authors lessen the danger of these antigen sensitive complements by using several complements mixed together or by using more than one quantity of complement.

[2] Zeitsch. f. Chemotherap., 1911, i., 80

In the titration of the complement the hæmolytic power is estimated alone and in the presence of antigen. This estimation is made just before the actual Wassermann test. This is done by taking a double series of test-tubes. Into the first series are put increasing quantities of a 1 in 24 dilution of complement (0·15 c.cm., 0·2 c.cm., 0·25 c.cm., and 0·3 c.cm.) and the volume made up to 1·0 c.cm. with saline, and into the second series similar amounts of a dilution of the same complement made two and a half times stronger. This strength represents the excess of complement we consider necessary in the test. The second series contains in each tube the quantity of antigen which is to be used in the reaction, the volume being brought up to 1·0 c.cm. with saline. Sensitized red corpuscles are then added to each tube in the first series and both series incubated for one hour at 37° C., at the end of which time the tube containing the smallest amount of complement showing complete hæmolysis is noted. A similar quantity of sensitised corpuscles is now added to the tubes of the second series, and after a suitable interval of time (15 to 20 minutes) the smallest amount of complement which gives complete hæmolysis is noted.

If the complement is good then the tubes (first, second, third, or fourth) in the two series which show complete hæmolysis should be the same. When the complement is hypersensitive the tubes do not agree, as a much larger dose of complement is required to bring about hæmolysis in the antigen complement series. In some cases where the complement is markedly hypersensitive little or no hæmolysis may be shown in this series at all. Such complements must be rejected and another guinea-pig taken. In a series of 24 complements tested in this manner by Dr. Fildes three hypersensitive ones were observed. Others, again, appeared not to be affected by the antigen at all, as is shown by the fact that hæmolysis went further in the antigen series owing to the presence of more complement.

Titration of the complement in the presence of antigen prevents any waste of time and the rejection of a whole series of results, as is sometimes the case. Further, it ensures that at least one full hæmolytic dose of complement will remain free at the end of the hour's incubation with the antigen, thus eliminating a frequent source of non-specific positive results.

(3) *Employment of 4 to 6 Units of a High-titre Amboceptor.*

The third important principle in the Wassermann reaction is the use of a high-titre amboceptor (preferably prepared from rabbits), and the value of this cannot be too much impressed on all workers. Without such an amboceptor it is impossible to get sharp end-results in the actual test. This peculiarity is due to a variety of causes, and it must be remembered that any deficiency of a weak amboceptor cannot be counterbalanced merely by using more of it. With an active amboceptor it is usual to use from 4 to 6 minimum hæmolytic doses, a quantity which gives maximal hæmolysis with all amounts of complement. With this dose of amboceptor there is evidently a complete saturation of the corpuscles as regards their sensitivity to complement. Larger doses of amboceptor make practically no increase either in the amount of hæmolysis or in the velocity of the reaction.

(4) *Inactivation of the Sera to be Tested for Half an Hour at 55° C.*

The necessity of sufficiently inactivating the sera to be tested arises from the fact that the unheated sera of certain normal individuals and of individuals suffering from certain acute affections possess inhibitory properties and so tend to give a positive Wassermann reaction. In half-an-hour's time only a very small part of the specific or syphilis-reacting substance is destroyed.

It is unnecessary here to discuss the theory of the effects of heat on these sera, but it seems most probable that heat has a stabilising effect in that it leads to an increase of those substances (formed by the hydrolysis of proteid by alkalies, &c.) which help to keep the colloidal particles of the serum in solution. Thus efficient inactivation of the sera leads to an increase of specificity.

One might also indicate that in the actual reading of the results at the end of the test there is a considerable liability to misinterpretation. It is therefore advisable, unless one has had considerable experience, not to read the results until the corpuscles have settled. In particular is this the case when the total volume used in the test is small or if a corpuscle emulsion of less than 5 per cent. is employed. With the reagents suitably arranged and standardised the test in the great majority of cases will be either completely negative or completely positive. For diagnostic purposes no serum which shows more than a trace of hæmolysis should be regarded as positive. Partial inhibitions are only of value when one is dealing with a known syphilitic case.

Finally, as already pointed out, the technique by which the Wassermann reaction is carried out is unimportant, provided it be exact and embodies the above-mentioned principles.

THE WASSERMANN REACTION: ITS USE AND ABUSE.

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IN THE LANCET of May 29th, 1909, four articles were published dealing with the then new serum diagnosis of syphilis. One of these was by myself, under the heading "The Serum Diagnosis of Syphilis," and I published two other notes on the same subject in THE LANCET of May 7th, 1910, and Nov. 11th, 1911, under the heading "The Comparative Value of the Various Methods of Anti-syphilitic Treatment as Estimated by the Wassermann Reaction." In these articles and in the small book that I published in 1912 on the "Clinical Pathology of Syphilis and Parasyphilis" I emphasised my opinion that the Wassermann reaction was a very valuable aid both for diagnosis and as a means of controlling treatment, but that it was not specific and could be absent in undoubted florid syphilis and could be present in other diseases when syphilis could apparently be excluded.

Nature of Reaction: Need of Standardisation.

For this reaction is not in any sense an immunity reaction: it is neither a test for toxin nor antitoxin, but is only a remote consequence of syphilitic infection. Probably something of the following "House-that-Jack-built" series may not be very wide of the mark. The *Spirochæta pallida* produces a toxin; the toxin produces destruction of cells rich in lecithin and cholesterin; these cell-destruction products, acting as an antigen, stimulate the body to produce the appropriate antibody, and it is the presence of this antibody that we seek in the Wassermann reaction. It is true that nearly all cases of syphilis which have advanced beyond the early primary stage give a positive reaction, and it is equally true that nearly all the non-syphilitic diseases give a negative reaction. In the early days the medical profession were wisely sceptical as to the value of this test, but now after years of trial, when innumerable responsible observers all over the world have recorded their experiences as to its value, the medical profession have to a large extent accepted the dogma that "a positive Wassermann reaction is a proof of syphilitic infection."

In almost any pathological condition nowadays that is at all obscure a Wassermann reaction is taken, and if it proves positive the patient is given a course of antisyphilitic treatment. If any history, however doubtful and unreliable, of a sore on the penis can be obtained the diagnosis is considered absolutely established. Recurrent sore-throats, persistent headaches, tenderness of bones, pains in joints, chronic ulcers, superficial glossitis, enlarged lymphatic glands, or any rash, are at once labelled syphilitic and handed over to the syphilologist for treatment if "a positive Wassermann reaction" is found. Yet not one practitioner in a hundred knows what variety of Wassermann reaction he is basing his diagnosis on. Nearly every laboratory has a different technique, and one laboratory's "positive" is another laboratory's "doubtful" and another's "negative." Unless the greatest care is taken in the titrating of the reagents misleading and contradictory results will certainly be obtained. If the test is made too delicate too many positives will be recorded; while if too large a margin is left for experimental error many undoubted cases of syphilis will be returned with negative reactions. If any results approaching consistency are to be obtained the Wassermann reaction must be rigidly standardised, and, in my opinion, the original method as carried out by the Army medical authorities is the most reliable, and should be accepted as the standard. But even where every possible precaution is taken and the most scrupulous care exercised contradictory results will often be obtained.

Discrepancies between Clinical and Pathological Evidence.

Within the last 15 months I have had the opportunity of comparing the history, symptoms, and Wassermann reaction of a large number of cases, many undoubtedly syphilitic, and some where the history and clinical condition alone give grave doubt as to the diagnosis. Some responsible, experienced, and acute observers say, "If a positive Wassermann reaction is present the patient must be treated as a syphilitic unless syphilis can be excluded." But how *can* syphilis ever be excluded? In my experience, at least 50 per cent. of young men will plead guilty to having had some kind of sore on the penis at some time, and a history of spots on the body or sore-throats can, with careful cross-examination, generally be obtained from about as many. In the past I have made a very large number of serum tests for the Wassermann reaction, having been pathologist to the London Lock Hospitals for five years, clinical pathologist to the National Hospital for the Paralysed and Epileptic for three years, and held other pathological appointments where these examinations fell to my lot, and during the last 15 months, although my own work has been largely clinical, I have had the opportunity of comparing reports on serum for the Wassermann reaction with the clinical symptoms and the patients' histories.

In the very great majority of cases the history, symptoms, and blood tests are in agreement, but there remains a very clear and definite number of cases where this agreement does not obtain. Also, in a certain number of cases the blood tests are contradictory, being on one occasion positive and on another negative, with only a small interval of time between the tests and no antisyphilitic treatment intervening. The discrepancies between clinical and pathological evidence are too frequent to be ignored, and the many explanations given for such discrepancies do not, in my opinion, carry conviction. When contradictory results in any pathological test become so noticeable that an elaborate series of explanations emerges for each and every contradictory result I think it becomes time carefully to reconsider and re-weigh the evidence and the deductions we are justified in concluding from the test in question. The opsonic index in tubercular infection had a similar rapid rise in popular favour, and ingenious reasons were elaborated for the contradictory results so often obtained; and when I ventured at the Royal Society of Medicine in 1910, at the discussion on Vaccine Therapy, to give it as my opinion that the opsonic index was an interesting laboratory phenomenon, but of no practical use for diagnosis or controlling treatment, I was considered by many as quite unnecessarily critical and sceptical.

Independence of Pathologist's Report.

The Wassermann reaction is such an extremely valuable aid to diagnosis and the control of treatment that it would be little short of calamitous if it became discredited through a lack of appreciation of its limitations. Unfortunately, the clinician and the pathologist too often lack that close coöperation and exchange of experiences which are so essential to the arrival at a correct conclusion as to the value of any one particular item of evidence in the syndrome of symptoms upon which alone conclusive diagnosis can be based. I am informed that in some hospitals when the clinical symptoms and the serum reactions are contradictory it is the custom to ask for a second specimen of blood for a control test, whereas no such control test is asked for if the clinical and pathological findings agree. This appears to me to be unsatisfactory, as obviously errors in technique or unreliable blood results are just as likely to occur in cases where the blood test agrees with the clinical symptoms as where the results are contradictory.

I think a pathologist's report, to be of any definite value, should be an entirely independent and unbiased report, based only on the result of the examination of the specimen, and that the supply of details of the clinical condition tends to make the report a biased one and of less value than if given without knowledge of these particulars. In well-established pathological tests, such as the Widal reaction, blood-counts, examination of sputum for T.B., throat swabs for K.L.B., or urine for albumin, sugar, or casts, it is not considered necessary to supply the pathologist with details of the clinical condition, whereas with the opsonic index and the Wassermann reaction such details are usually asked for by the pathologist. Indeed, both in venereal clinics under the Local Government Board and in most military venereal establishments forms giving history and symptoms of the cases are required to be sent with each specimen of serum referred to the pathologist for his report as to the Wassermann reaction.

Some Contradictory Results.

The following table gives some of the contradictory results I have met with in my clinical experience, both military and civilian, during the last year:—

No.	Symptoms.	Wassermann reaction.	Date.	Intervening treatment.	Wassermann reaction.	Date.
63	Gumma.	++	21/3/17	Nil.	—	25/4/17
77	,,	—	20/7/17	,,	+±	30/8/17
84	Children syphilitic.	++	27/7/17	,,	—	7/8/17
85	Condylomata.	—	6/6/17	,,	++	25/7/17
186	Sore on lip.	++	25/7/17	N.A.B. 0·75 g.	—	28/9/17
254	Nil.	+—	17/10/17	N.A.B. 0·3 g.	—	14/11/17
295	Vulvar chancre.	—	3/10/17	Nil.	++	26/10/17
311	Nil.	+±	19/10/17	,,	—	26/10/17
400	Sore on penis.	—	26/6/17	,,	++	8/7/17
401	Soft sores.	+	8/7/17	,,	—	16/7/17
402	Ulcer left leg.	—	3/11/17	N.A.B. 0·3 g.	++	13/10/17
403	Multiple sores, penis; ulceration, tonsils; moist papules, scrotum; *Sp. pallida* present.	—	11/6/17	—	—	—
404	Septic sores, thighs; no venereal history.	++	27/9/17	—	—	—
405	Septic sores, penis, pubes, & groin (bubo)	+	28/5/17	Nil.	±	9/6/17
406	Old treated syphilis.	±	22/5/17	,,	++	5/6/17
407	Chancre, roseolar rash.	++	12/2/18	N.A.B. 0·9 g.	—	22/2/18
408	Primary sore, tongue.	+±	10/2/18	Nil.	—	22/2/18

++ = Strongly positive reaction. +- = Weakly positive reaction.
± = Doubtful positive reaction. — = Negative reaction.

I have also met several cases of chronic ulceration of the legs with a very doubtful syphilitic history that gave a strongly positive Wassermann reaction, which after prolonged and energetic antisyphilitic treatment still remained strongly positive and the ulcers *in statu quo*. Three cases of chronic malaria with a history of sores on the penis of very doubtful syphilitic origin with a strongly positive Wassermann reaction that was uninfluenced by antisyphilitic treatment cannot, in my opinion, be considered as having the diagnosis of syphilis fully established.

Diagnosis based on Positive Reaction alone.

Several, indeed many, cases with neither history, signs, nor symptoms of syphilis have been referred to me for treatment solely on the evidence of a positive Wassermann reaction. That a positive Wassermann reaction is a symptom of great value and assistance in the diagnosis of syphilis I have always believed, and still believe, and I am convinced that this reaction provides important help for controlling treatment, but I do not think that a positive diagnosis of syphilis can be based on this test alone unsupported by either history, symptoms, or the rapid improvement of doubtful lesions under antisyphilitic treatment. If cases continue to be diagnosed as syphilitic on a positive Wassermann reaction, either alone or supported only by an inconclusive history obtained on cross-examination with leading questions, not only will many non-syphilitic cases be branded and treated as syphilitic, but this extremely valuable test will become discredited, and will be neglected by those who have come to look upon it with distrust because some ardent enthusiasts have claimed for it an infallibility that it does not possess. It has now become a matter of quite common occurrence to meet either a military or civilian patient who is sent to hospital because his Wassermann reaction is positive and who has not long since completed an energetic course of antisyphilitic treatment and who has been quite unable to call to mind any train of symptoms that before the arrival of the Wassermann reaction were considered absolutely necessary to establish the diagnosis of syphilis. Practically every case of chronic ulcerated throat, chronic ulcers of leg, superficial glossitis, or rash of doubtful origin now has the Wassermann test applied, although no other symptoms whatever of syphilis may be present. I give three examples out of many similar cases as typical of cases that have been diagnosed and treated as syphilis on evidence that would be considered quite insufficient in any court of law.

CASE 1.—A man with a history of a sore on the penis, occurring one day after connexion, which only lasted three days and which cleared up under local treatment and which was not followed by any rash. Some months later he developed a sore-throat (he had been a subject of recurrent tonsillitis since childhood); his serum reaction was taken and reported to be strongly positive. He gave a history of a blow on the head a few years previously, which had been followed by epileptic fits, which still occurred at about two-monthly intervals. He was given a complete course of 10 intravenous injections of N.A.B. and 10 intramuscular injections of mercury, at the end of which course his Wassermann reaction was as markedly positive as at the beginning. It appears possible that cell destruction products set free by the gross lesions of his brain at the time of his concussion accident, which was followed by Jacksonian epilepsy, might have been the origin of his positive Wassermann.

CASE 2.—A woman with a chronic ulcer of the leg for 11 years was found to have a positive Wassermann reaction. A full course of N.A.B. and mercury, together with increasing doses of pot. iod., failed to have the slightest influence on the ulcer. The patient was the mother of healthy children, had not had any miscarriages, and no venereal history was obtainable.

CASE 3.—A man who stated that his last connexion was in February, 1917, which was not followed by any symptoms. In May, 1917, he reported sick with scabs on the external surface of the sheath of the penis and inner side of the thighs which had been present three days and which he attributed to his employment—that of searching and burying putrid corpses. His sores healed very slowly, and after a full course of salvarsan and mercury his blood remained strongly positive.

It would be easy to multiply these examples, but it would serve no useful purpose. Those who demand that syphilis must be excluded before it is justifiable to consider a positive Wassermann reaction as doubtful evidence of syphilitic infection will be unconvinced. For some years the precise value of a positive Wassermann will remain largely a matter of individual opinion. Personally I believe that many non-syphilitic cases are diagnosed and treated as cases of syphilis owing to a confidence in the test that is based too much on the opinion of a few experts and too little on clinical experience and the unbiassed evidence of logical deduction.

Value of Test.

As one of the pioneer advocates of the value of this test, should like to conclude with two examples out of many cases where the test has proved of the greatest assistance in diagnosis.

1. A man was brought to see me in 1910 diagnosed as general paralysis; he had marked aortic reflux, periods of excitability and depression, inequality of pupils, ptosis, and a strongly positive Wassermann of his blood, and a history of syphilis inadequately treated some years previously. His cerebro-spinal fluid gave a negative Wassermann reaction. The ptosis and inequality of pupils cleared up rapidly under pot. iod. and injections of salvarsan and mercury. In view of the negative Wassermann of the cerebro-spinal fluid I decided against G.P.I. When I saw him last about six months ago, nearly eight years after his first visit, he was in a much better condition than at his first visit, though unable to live an ordinary life. During the last eight years he has three times been diagnosed as G.P.I. by medical men of large experience in mental disorders. The Wassermann reaction of his cerebro-spinal fluid has been taken three times during this period and has always been negative.

2. A boy, aged 8, came to my clinic with pain, tenderness, and slight thickening of the right hip in the region of the joint and great trochanter. No stigmata of congenital syphilis were observed. For several years he had been treated as a case of tubercular disease of the hip-joint and had been in a hospital devoted to surgical tubercular affections. His Wassermann reaction was strongly positive and the hip cleared up after two injections of N.A.B. His mother, an apparently healthy woman, also gave a strongly positive reaction.

A symptom does not become useless for diagnosis because it is not pathognomonic, and it is the sum of various symptoms, none of which may be pathognomonic, that establishes diagnosis. I consider the Wassermann reaction as one of the most valuable symptoms of syphilitic infection that we possess, but that diagnosis cannot be based with certainty on this symptom alone, even if the reaction is strongly positive, and that weak positives are useless for diagnosis. A negative Wassermann is of especial value when lesions of a doubtful nature are present and render it highly improbable that syphilis is the cause of the lesions. A negative Wassermann of the cerebro-spinal fluid is probably sufficient evidence to exclude G.P.I. A negative reaction also indicates that the treatment given has been efficient, but one or two negatives are no proof of permanency of cure.

ACRIFLAVINE AND PROFLAVINE:

NOTES ON THEIR USE IN INFECTED GUNSHOT WOUNDS.

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A SHORT communication [1] was made by one of us (R. B. C.) in June, 1917, on the use of acriflavine (or flavine, as it was then designated) in the treatment of infected gunshot wounds. The investigation on which the present report is based was undertaken in July, August, and September, 1917, with the object of ascertaining whether the action of proflavine differed in any way from that of acriflavine. Since October, 1917, a large proportion of the infected gunshot wounds admitted to this hospital have been treated with acriflavine, and the clinical results have been observed personally by one of us (R. B. C.) in over 60 cases. We are, accordingly, in a position not only to express an opinion on the relative qualities of acriflavine and proflavine, but also, in view of the more extended use of the former salt, to substantiate the opinions already expressed [1] and to meet some of the criticisms put forward against it by various writers.

Investigation into Action of Proflavine on Infected Wounds.

Number of cases.—In this investigation proflavine, followed by eusol, was used in 30 cases (32 wounds being treated). Three additional cases treated with eusol alone were also observed, wounds as similar as possible (clinically and bacteriologically) being chosen in order that an accurate comparison of the effect of these two antiseptics might be made.

Type of Wound.

(*a*) Disarticulations and amputations (19), 12 through thigh, 3 through arm, 1 through leg, 2 at hip, and 1 at shoulder. Removal of limb in all cases was necessitated by acute spreading nature of septic infection—in 2 massive gas gangrene had already developed. In 10 disarticulation or amputation was performed through open suppurating wound, in others through tissues more or less infiltrated with sepsis. In all except one the operation wound was left entirely open.

(*b*) Compound fractures (3), of pelvis, of clavicle, of superior maxilla.

(*c*) Penetrating wounds of joints with compound comminuted fracture (3), of knee of elbow, of ankle.

(*d*) Large flesh wounds (5).

Method of Treatment.

(*a*) Strength of solution. In all cases 1-2000 solution in normal saline was used.

(*b*) Method of application. In *deep wounds*, after adequate preliminary surgical treatment (viz., efficient drainage, removal of loose fragments of bone or foreign body), gauze packing well soaked in proflavine solution was introduced into every corner of the wound. Great care was always taken that the gauze should be kept constantly moist. This was obtained in some cases by a covering of jaconet, in others by frequent addition of more solution through a rubber drainage-tube introduced into the depths of the wound at the primary dressing. The necessity for "intimate contact of the antiseptic with infected tissues" has since been emphasised by Browning and Ligat.[2]

In *open wounds* folds of gauze were used, additional solution being poured on when necessary.

The primary dressing was, as a rule, not removed until the third day; in one case it was left undisturbed for five days. The first change of dressing was occasionally performed under gas anæsthesia, but in most cases the gauze was easily removed without an anæsthetic. As a rule the dressing was again changed on the fifth and seventh days, but in some this was done daily.

The application of proflavine was continued until the characteristic yellowish "fibrinous membrane" was present over the whole wound. This condition was usually reached on the sixth or seventh day. As soon as the membrane had formed moist eusol dressings were substituted.

In all the disarticulations and amputations performed through open suppurating wounds a quantity of the solution, varying from 10 to 30 c.cm., was injected into the infected tissues at the time of operation.

Results.

(*a*) *Clinical.*—The rapid improvement in the general condition of patients as shown by subsidence of temperature, pulse-rate, &c., and rapid disappearance of pain and of inflammatory œdema in the vicinity of wounds, already described in the notes regarding the action of acriflavine, were very evident.

The wounds became surgically "clean," by which is meant that they were covered entirely by firm bright-red granulations from which there was very little discharge, after an interval which varied slightly according to various factors.

Disarticulations and amputations.—In those performed above suppurating wounds the average time was 12 days; in those through the wound 18 days.

Compound fractures.—Two of the three were "clean" on the ninth and thirteenth days respectively, but in the third case, although the soft parts of the wound cleaned very rapidly, purulent discharge continued for some time owing to extensive necrosis of bone.

Joints.—Two were "clean" in 13 days, but in the third necrosis of bone resulted in persistence of purulent discharges after the soft parts of the wound were quite clean.

Flesh wounds.—The average time was 11 days.

Epithelial growth.—In every case it was noted that epithelial growth took place during the period of application of proflavine, and that this continued after eusol was substituted. In several cases epithelial growth was "very marked" on the twelfth day, before the membrane had completely separated; in two cases in which this separation was unduly delayed epithelial proliferation continued with undisturbed rapidity.

An interesting demonstration was obtained in one case in which two flesh wounds on the same limb, similar in character (clinically and bacteriologically) were treated with proflavine followed by eusol and by eusol alone respectively. At the end of three weeks new formed epithelial ingrowth was fully twice as extensive in the former as in the latter.

(*b*) *Histological.*

Epithelial growth.—In seven cases sections of the edge of the wound were examined, 14 specimens being taken which were obtained on the first, third, fifth, and seventh days of flavine treatment, and the fourth and fifth days after substitution of eusol. Epithelial proliferation was active and continuous from the beginning, a thin edge of proliferating epithelium being present in earlier sections; in later stages a similar, but more extensive ingrowth was evident.

Film.—After two days' application of flavine a film composed of an amorphous network of fibrin closely adherent to underlying tissues was present. This substance gave the characteristic reaction by Weigert's stain, although in many cases the staining was imperfect, as pointed out by Drummond and McNee.[3] The network contained numerous leucocytes which showed no signs of disintegration, their staining reaction being perfect and their nuclei intact, while phagocytosis was observed in some cases.

Granulation tissue.—Further sections from central portions of two wounds, and from exposed bone marrow in two amputation stumps, were examined. Granulation tissue, showing new-formed capillaries and fibroblasts, was present to a small extent in earlier and to a much greater degree in later stages.

Absence of necrosis.—Neither in the film, nor in granulation tissue, nor in underlying tissues (fat, muscle, &c.) was there any evidence of necrosis.

Absence of inflammatory changes.—Soon after the application of flavine there was a remarkable absence of the inflammatory changes usually met with in infected wounds. There was no engorgement of blood-vessels, no œdema of tissues, and no infiltration of leucocytes. This condition continued after substitution of eusol.

(*c*) *Bacteriological.*—Although in the previous communication referred to,[1] the opinion was expressed that bacteriological investigation of wounds by films and cultures gave no reliable criterion of the effect of the antiseptics used, and was thus of no clinical value, on the suggestion of Colonel Sir W. Leishman, C.B., a detailed bacteriological investigation was made of 27 of these wounds.

Technique.—At intervals of two or three days films and cultures were made from various portions of the wounds, usually four to eight. In the majority of cases four to eight such examinations were made.

Types of organisms.—Coliform bacilli were present in 24, streptococci in 23, staphylococci in 20, aerobic sporing bacilli in 14, pyocyaneus in 12, diphtheroid bacilli in 2. The sporing bacillus was Gram-positive, 3 to 6 μ long by 1·3 to 1·5 μ broad, with rounded ends, growing generally in short chains and giving no growth in anaerobic conditions. The spores were oval and central.

Persistence of organisms.—At end of period of application of proflavine streptococci were present in 87 per cent., coliform bacilli in 75 per cent., staphylococci in 60 per cent., pyocyaneus in 58 per cent., aerobic sporing bacilli in 36 per cent., diphtheroid bacilli in none. Cultures taken showed that these organisms were still capable of growth at this stage.

Number of organisms.—Throughout the investigation an approximate estimate of the numbers of organisms present was made by averaging the number in 10 fields. In 27 wounds treated with proflavine none at any time showed a greater number than 50 per field, and in 21 there were less than 20 per field. In contrast with this the three control cases treated with eusol alone showed in the first three days well over 100 per field and later over 50 per field.

Phagocytosis.—This was present in varying degree in all cases, and in 12 comparatively recorded it was present during the whole period of observation.

Comparison of Action of Acriflavine and Proflavine.

Although the action of these two salts is very similar, as pointed out by Colledge, Drummond, Worthington, McNee, Sladden, and McCartney,[4] there can be no doubt that proflavine is slower. The improvement in the general condition of patients is not so rapid. The formation of the fibrinous membrane is not usually complete until the fifth, sixth, or seventh day in contrast with its presence on the third, fourth, or fifth day when acriflavine is used. Further, separation of membrane and attainment of a "clean" wound are also slightly delayed.

Conclusions.

As already stated, since the completion of this detailed investigation into the action of proflavine, the action of acriflavine has been extensively observed, clinically, histologically, and bacteriologically, and it is now permissible to formulate several conclusions which apply to the action of both compounds.

1. *Action on bacteria in infected wounds.*—The application of flavine to infected wounds does not render them bacteriologically sterile. Flavine is clearly *antiseptic*, not disinfectant, in action. The diminution in the numbers of the organisms might suggest a bactericidal action, but their persistence and viability favour the view that the absence of inflammation and suppuration may be due to neutralisation of the toxins. Bacteriological investigation is of little help in judging of the progress of the wounds.

2. *Action on tissues.*—There is a complete absence of evidence of damage to tissues when these salts are used in solutions not stronger than 1–1000. There is no necrosis of any of the exposed tissues. We disagree absolutely with the opinion expressed by Fleming[5] regarding the effect of flavine on leucocytes. Whatever be its effect on these cells in vitro their activity in wounds was unimpaired after many days' exposure to this antiseptic. The reparative changes are undoubtedly delayed to a certain extent, but we do not agree with Drummond and McNee[3] that there is an absence or even a diminution of epithelial proliferation in the early stages. Nor can we agree with their statement that there is no production of granulation tissue during this period, as although this was slightly delayed, healthy granulations were found by us under the fibrinous membrane.

3. *Value in treatment of infected wounds.*—These salts are of undoubted value in controlling and preventing the spread of sepsis, as is shown by the rapid improvement in local and general conditions.* This object having been gained, there is no advantage in continuing their use, as a condition is reached in which reparative changes are slow, although not by any means absent. Following on the substitution, after a few days, of a more stimulating antiseptic, e.g., eusol, a "clean" wound is obtained sooner than by any other form of treatment known to us.

Owing to the limitation of sepsis and the consequent small amount of sloughing, there is much less liability to secondary hæmorrhage. Further, there is nothing to justify Fleming's[5] warning regarding its tendency to favour bleeding. On the contrary, it was found that dry flavine gauze (gauze soaked in 1–2000 solution of flavine and allowed to dry) was a good hæmostatic when introduced into wounds from which there was considerable hæmorrhage.

There is no evidence of any general toxic effect.

4. *Essential points in treatment* —(*a*) Necessity for adequate preliminary surgical measures; (*b*) necessity for continuous supply of the antiseptic to all parts of the wound; (*c*) no necessity for frequent changes of dressing; (*d*) the formation of the fibrinous membrane is a useful clinical guide, indicating when a more stimulating antiseptic ought to be substituted.

We are indebted to Surgeon-General Sir A. A. Bowlby, K.C.M.G., for valuable suggestions; to our commanding officer, Lieutenant-Colonel E. C. Hayes, R.A.M.C., for permission to forward these notes; and to Miss G. I. Busk, V.A.D., who was responsible for the clinical records.

References.—1. Carslaw: R.A.M.C. Journal, 1917, xix., 488. 2. Browning and Ligat: THE LANCET, 1917, ii., 766. 3. Drummond and McNee: THE LANCET, 1917, ii., 640. 4. Colledge, Drummond, Worthington, McNee, Sladden, and McCartney: THE LANCET, 1917, ii., 676. 5. Fleming: THE LANCET, 1917, ii., 341.

NOTE ON

THE TREATMENT BY BRILLIANT GREEN OF RECENTLY INFLICTED GUNSHOT WOUNDS.

BY R. MASSIE, F.R.C.S. EDIN.,

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THE following observations were made at a casualty clearing station during the autumn of 1917, whilst acting in charge of a surgical team there. Of the large number of cases treated with brilliant green information regarding their subsequent progress was obtained in only 46 cases. The wounds had, without exception, been received from two to eight hours previous to treatment, and were all severe, with considerable tissue damage. No special type of case was selected, but it was not used in cases involving the peritoneal or pleural cavities, though there seems to be no reason why it should not be so used.

The solutions used were: (1) 1–1000 brilliant green in normal saline; (2) 1–500 in normal saline; (3) 1–500 in 0·5 per cent. chloretone. Of the solutions No. 3 was preferred. It appeared to have a definitely analgesic effect, rendering dressing less painful. Wounds appeared to clean more quickly under the stronger solutions. No toxic symptoms were observed in any case.

Results were recorded by independent observers and reported, for the most part, by means of Form M.R.C.1, since it was necessary to evacuate early. When possible a complete excision of damaged tissue was carried out and foreign bodies were removed. In cases of compound fracture all fragments of bone having no periosteal attachment were removed. Damaged tissue is more deeply stained by brilliant green than is healthy tissue. It is useful in this respect when excising the tracks of missiles. All tissue, except skin, which holds the stain of 1–500 solution, should be excised.

Results of Treatment.

The cases fall into five groups:—

GROUP 1. *Gunshot wounds with compound fracture of long bones—17 cases.*—Of these, 12 were satisfactory and 5 unsatisfactory, by which is meant that they required further operative interference. Of the unsatisfactory cases there was one of gas-gangrene requiring amputation on following day. No other amputations were necessary after evacuation.

As typical of the satisfactory cases may be quoted:—

1. Private H., admitted 28/8/17, suffering from lacerated wound of left shoulder, with compound fracture of neck of scapula. Wound excised, loose fragments removed, and brilliant green chloretone solution syringed into fracture. Report 22/9/17. Wound healed; fragments united.

2. Private W., admitted 6/9/17, with gunshot wound of shoulder and fragment of metal embedded in neck of humerus. Wound excised. Foreign body gouged from neck of humerus and portion of bone removed. Packed brilliant green gauze and dressed frequently. Report 12/9/17. Secondary suture carried out and result satisfactory.

Of the unsatisfactory cases may be mentioned:—

Private K., admitted 4/9/17, suffering from gunshot wound right leg, with compound fracture of tibia and fibula, with much comminution. Wound excised. Some fragments of bone removed. Wound packed with brilliant green gauze. Evacuated at once. Report: Disarticulation at knee-joint 16 hours later for gas gangrene. Dissection of leg showed enormous comminution of bones and muscles under much tension from gas infection. Evacuated to England 1/10/17.

GROUP 2. *Gunshot flesh wounds—16 cases.*—Of these, 14 were satisfactory and 2 unsatisfactory. Six were completely sutured, and 4 healed by first intention. There were no cases of gas-gangrene or subsequent amputation in this group, and secondary sutures were early and satisfactorily carried out.

GROUP 3. *Knee-joints, penetrating—5 cases.*—All were satisfactory. In one of these no foreign body was found, but there was a doubt of its existence in the joint, which could not be resolved owing to the X ray apparatus being out of action. In all these cases the wound was excised down to synovia, and completely sutured. In one case it was necessary to excise whole of patella. This case was reported a month later to be quite healed, and secondary operation was then being considered, since the joint was still movable and the limb somewhat unstable.

GROUP 4. *Gunshot wounds of joints, necessitating excision of joint—4 cases.*—One case of knee-joint and three of elbow-joint. Of these, two elbow-joints which were retained for a week were satisfactory. The case of excised knee-joint was amputated through middle of thigh four days later by myself, on account of spreading sepsis. One of the elbow-joints was amputated at the base three days later for a like reason. In all these cases there was much comminution of bone and much tissue damaged.

GROUP 5. *Gunshot wounds of shoulder, necessitating interscapulo-thoracic amputation 4 cases.*—All of these eventually recovered. They were retained for ten days and sent down at end of that time, with very large, but clean and healthy granulating surfaces.

Brilliant green produces exuberant, but very vascular, bright-red granulations.

Noticeable features in cases treated with it are the absence of œdema and inflammation round the wound and the rapidity with which sloughs and sequestra separate. It is painless in application and does not appear to interfere with the growth of epithelium. For these reasons it may be considered a useful antiseptic, and though it can by no means atone for an incomplete or faulty primary excision it may be used with advantage where anatomical conditions render complete primary excision impossible.

* A good example of the power of flavine to limit sepsis occurred in one case in which too much solution was injected into the muscles of an amputation stump infected by coliform bacilli, streptococci, and staphylococci. The consequent obstruction to the blood-supply resulted in dry gangrene of a patch of exposed muscle, which became dark and shrivelled and separated on the seventeenth day without becoming involved in the surrounding sepsis. The wound had been treated with flavine for four days, followed by eusol.

THE Reports from the Pathological Laboratories by Captain J. Gordon Thomson and Captain L. F. Hirst, published in THE LANCET of April 20th, were dated August 9th, 1917.

EPIDEMIC STUPOR IN CHILDREN.

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AND

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DURING the months of March and April, 1918, there have come under our observation a series of cases in children exhibiting an unusual condition of stupor. Three of these children have been admitted to the Children's Hospital, Great Ormond-street, aged 11, 7, and 4 years respectively, and one into King's College Hospital, aged 3½ months, in a condition of stupor which at first sight suggested the diagnosis tuberculous meningitis. The children were taken ill on Feb. 27th and March 9th, 22nd, and 25th.

The stupor is said to have developed rapidly, without convulsions—in one case it was preceded by listlessness, a dreamy state, and inability to do his work at school; in another case, although the boy had been ailing and had had headache for 2–3 months, yet his stupor dated from one week before admission to the hospital. The children were brought to the hospital in a stuporose condition and lay on their backs with the eyes closed, the legs extended, the arms sometimes flexed, sometimes extended.

There was general rigidity of the muscles, but the limbs could be moved passively in any direction and tended to remain in whatever position they were placed, a cataleptic condition being present. A rhythmic tremor of the hands and forearms has also been observed. The rigidity has the character of "plastic tone," described by Sherrington, and the face has a peculiar mask-like appearance. Although apparently unconscious, the children could be roused, would on command put out the tongue, open the eyes and follow a light or the finger, but without showing any sign of recognition of the object. When the children are asked to open the eyes a flickering movement occurs before the eyes open. If the eyelids are raised passively the eyes may be seen to be divergent. Irregular nystagmoid movements occur, the eyes moving in all directions in an incoördinate manner. In addition to the divergent squint, there was in one case upturning of the eyes so that the cornea was only half seen, and in two cases less movement of one side of the face than the other when the child cried.

Swallowing was usually good. The child aged 4 years, even when most stuporose, would eat solids, and the infant, when in similar condition, sucked the breast well; in one case, however, the feeding-tube had to be used. The children do not speak, but emit a peculiar cry which may persist for hours. There is no retraction of the head or neck, but the neck and trunk show the same rigidity as is exhibited by the limbs. If the children are placed on their legs they will balance and will walk slowly forward if encouraged to do so, but take no apparent notice of their surroundings. Urine and fæces are passed incontinently into bed.

On physical examination no sign of organic disease of the systemic or nervous system can be found. The temperature may be slightly raised for a few days at the onset, but after this is usually normal throughout. The pulse remains slow; in one case it was irregular, the respirations normal. The children may perspire profusely, especially about the head and upper extremities. In one case the feet were in a position resembling tetany, and the veins over the feet were dilated. In this case the child would, if the forefinger of one's hand were placed in the palm, grasp it so tightly that she could be raised off the bed just as with the prehensile grasp of the new-born infant. All the deep and superficial reflexes are normal. The fundus oculi is normal. The cerebro-spinal fluid on lumbar puncture flows out under normal pressure and shows no cytological or chemical change. The Wassermann reaction of the cerebro-spinal fluid and blood is negative. The blood shows no change, no malarial parasite, trypanosome, or other organisms being present; blood culture is negative. The fæces contain no parasitic ova and the urine is normal.

On the physical side every method of investigation so far adopted has resulted in a negative. On the psychological side the cases have been investigated by Dr. John MacCurdy and he has gone fully into the attitude of two of the children to air raids. The younger child, aged 4, has never shown any fear of them; the elder child has always been a nervous boy, and has great terror immediately the warning sounds. Dr. MacCurdy is inclined to regard the condition as a "defence reaction to a terrifying experience."

Course of the disease.—The course of the disease has been towards recovery. After lying for 3–5 weeks in the stuporose condition the children slowly recover, open their eyes, take notice of their surroundings, begin to speak in a slow and hesitating manner and often indistinctly. It is striking that although these children have been in an apparently unconscious condition, yet they are conscious of their surroundings, for in one case, that of the boy aged 11, he was able to say that he was brought to the hospital in a taxi-cab, and that he had been fed with a tube and a white fluid (milk). He could tell the day of the week from the fact that his mother visited him on Sunday. Although the children have so far recovered, yet they are still far from normal. One boy, aged 7, remains very thin and nervous, with a good deal of irregular fidgety movements of the face and limbs. Another boy, aged 11, stands with the body bent, the arms flexed in a position resembling that adopted by a patient with paralysis agitans. This boy also has the fixed expression, the short shuffling gait, and retropulsion often seen in that disease. In this connexion it is interesting to note that Dr. Farquhar Buzzard, in THE LANCET, April 27th, p. 616, in a letter headed "Toxic Encephalitis," emphasises the "paralysis agitans" appearance of the patient described. The younger child, aged 4, when stood up and making an attempt to walk, crosses the legs like a cerebral diplegia. The intelligence does not seem to be impaired. The interference with nutrition is remarkably little; indeed, the infant gained some weight during the illness, and the child aged 4, though not actually weighed, was thought to have gained flesh during the period of stupor. The boy aged 7 was thin on admission and has undoubtedly wasted since his illness.

Date of onset of illness.—The boys were at school till the onset of their illness—viz., Feb. 27th and March 22nd. The child aged 4 was taken ill on March 9th and the infant on the 25th.

Locality.—The three children in the children's hospital came from the same district in the north of London. The other child in King's College Hospital from Peckham.

Family history.—No other members of the families of these children have been affected. The mother of the infant aged 3½ months states that she and her husband have been perfectly well; she has suckled her infant and she is quite sure that it has had no other food of any sort.

Remarks.—A note in THE LANCET of April 27th, p. 611, describes an epidemic of obscure origin occurring in children in Paris, the prominent symptoms of which were headache and lethargy. M. Netter describes the condition provisionally as a form of encephalitis. It seems this condition may be similar to that here described. So far it has not been possible to ascertain the cause of this condition of stupor in children. We have carried out such methods of investigation as were open to us with negative results, and we would acknowledge our indebtedness to our co-workers—to Miss M. A. Blandy and Miss R. Jobson for the clinical records; to Dr. David Nabarro and Dr. C. W. Daniels for the various investigations of the blood, cerebro-spinal fluids, and stools; to Dr. John MacCurdy for his psychological investigation; and to Dr. A. F. Voelcker for permission to refer to the case under his care.

Conclusions.—From these cases, all having their onset within a period of about four weeks, and particularly from the case occurring in an infant entirely breast-fed, it seems justifiable to draw the following conclusions:—

1. That a new disease having an epidemic distribution has appeared which, whilst it may affect adults, with whom we are here not concerned, affects children and even infants at the breast.

2. That the disease, which we have called "epidemic stupor" from its most characteristic symptom, is probably of infective character. Any supposition that it might be due to nervous shock from air raids seems to us to be negatived by its affecting an infant only 3 months old, and also by the fact that the onset of illness in this case, as in another, was at least three weeks later than any air raid.

3. That it is not due to any inflammatory disease of the meninges, for the cerebro-spinal fluid is normal.

4. That it is not essentially dependent upon the ingestion of sausage, ham, or tinned foods, or any other supposed source of so-called botulism, for it has occurred in an exclusively breast-fed infant.

5. That if due to bacterial cause the infection can be conveyed by means other than food.

TOWARDS the memorial to the late Captain P. Levick, R.A.M.C., medical officer to the Guards Division, who was thrown from his horse and killed, the officers, non-commissioned officers, and men at the front have sent a cheque for £77 to the treasurer of the Royal Surrey County Hospital, Guildford, "in token of the honour and esteem in which he was held."

Clinical Notes:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF
ACUTE LYMPHATIC LEUCOCYTHÆMIA FOLLOWING TRAUMA OF BONE.

BY J. EASON, M.D. EDIN., F.R.C.P. EDIN.,
CAPTAIN, R.A.M.C. (T.).

IN view of the uncertainty as to the pathology of leucocythæmia in general, the following case is of some interest, as the trauma and the disease appear to stand in relationship of cause and effect.

Private ——, aged 20½; not affected by any infectious fever incidental to childhood; when 16 had pneumonia. In January, 1915, adenoids removed by Dr. Logan Turner; no excessive bleeding. Soon after, he went to France, feeling in robust health. On April 23rd wounded in left arm by rifle bullet; he said bone was not broken, but injured. On June 18th went on furlough; at this time he says he felt "well enough," but to his family seemed listless. On June 26th he reported for duty in Edinburgh; the medical officer sent him to Victoria Convalescent Hospital; massage treatment of left arm for three days. On June 29th he complained of headache, and during night of July 1st–2nd awoke with severe pain in left lower axillary region, preventing sleep; hot fomentations; milk diet. On July 3rd, blood began to ooze from gums. Dr. R. W. Johnstone states that preceding onset of abdominal pain, patient looked generally out of condition. No blood in urine.

On morning of July 4th patient was admitted to Craigleith Hospital. When I saw him shortly after he appeared in considerable pain; complexion pasty and pale; severe pain in upper left quadrant of abdomen. T., 99° F.; P. regular, arteries fairly well filled, tension not appreciably subnormal. Tongue coated, but moist and stained with blood; breath foul; gums spongy and blood oozing from margins; also submucous hæmorrhages. No vomiting had occurred; bowels moved on previous day; melæna not observed. A few purpuric spots around neck. Above level of umbilicus normal contour obliterated. Respiratory movement of abdominal wall absent. Great tenderness on palpating left upper quadrant; left rectus rather boarded; percussion note in this quadrant absolutely dull; dullness extended to sixth rib in mid-axillary line, and to spine, at corresponding level. Rather coarse friction over lower ribs anteriorly. Owing to great tenderness, splenic margin and notch could not be defined by palpation; no reason to doubt spleen was greatly enlarged and friction due to perisplenitis. Respiratory symptoms were absent; lungs and heart clearly not involved. Urine: No albumin, blood, or sugar; reaction acid, sp. gr. 1015. Thyroid and lymphatic glands not enlarged; bones of limbs tender on pressure.

On July 4th: W.B.C., 125,000; film showed characters of large-cell lymphatic leucocythæmia. 6th: R.B.C., 3,200,000; W.B.C., 107,000; Hb, 45 per cent. Differential count per cent.: Lymphocytes, 96; polymorphs, 2; large mononuclears, 2; a few myelocytes, no nucleated red cells.

July 7th: Was distinctly less well; gums bleeding more freely; urine contained large quantity of blood. Isolated spots of purpura on various parts of body and limbs. Spleen very large and very tender on light palpation; anterior limit one inch to left of middle line; friction audible over it. Lymphatic glands of neck, axilla, and groin much larger and more tender; cervical glands specially tender and softer. Mouth very foul-smelling, in spite of constant washing; constantly a coating of blood on gums, tongue, and teeth. T. 100·4°–102·8°; P. 104–132. 8th: R.B.C., 1,600,000; W.B.C., 100,000; Hb, 25 per cent.; lymphocytes, 99 per cent.; polymorphs, 1 per cent. T. 99°; P. 80–96. No improvement in general condition.

July 9th: Steadily losing ground. Very free oozing of blood from gums; lower lip enormously swollen and discoloured; mucous surface of lip sloughing. Glands of neck very tender; groin and axillary glands not so large nor so tender as those of neck. Severe pain in splenic region during night. He was weak and listless, but quite conscious and answered intelligibly. P. 80–100, regular. R. 24–30. At base of heart hæmic murmurs. Bones tender, especially in region of bullet wound. T. 97·4°–97·8°. Motions were tarry; urine, much blood. 10th: Hæmorrhage into sclerotic. Died at 10.30 A.M., rather suddenly.

A post-mortem was made by Captain J. M. Miller, R.A.M.C.(T.). The thymus was large, bilobed, extending to second space, about width and thickness of a normal pancreas.

Microscopic appearances.—Mesenteric glands showed evidence of lymphatic hyperplasia; sinuses and vessels contained very large numbers of lymphocytes. Thymus gland: Marked lymphocyte hyperplasia; Hassall's corpuscles present, but widely separated from one another. Bone marrow: Typical leucoblastic reaction—lymphocyte type; small hæmorrhages present, more especially on side of gunshot wound; otherwise no difference in appearances. Spleen: Massive infiltration with small mononuclear cells; sinuses full of such cells; the Malpighian bodies showed no alteration of note. Liver and spleen: Showed a moderate amount of infiltration of stroma with lymphocytes; blood-vessels contained an unusual number of similar cells.

The pathological findings therefore gave no support to regarding the trauma as the cause of the leucocythæmia, but in the nature of things one would not expect them to do so. The disease lymphocytic leucocythæmia is a diffuse proliferative change in the lymphoid tissues generally and no trace of the origin of the condition at one particular point would likely be found at the time that the case reached its fatal issue.

ASCARIDIASIS SIMULATING APPENDICITIS.

BY ALAN KIDD, M.D., B. CH. BELF.,
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THE following case is the first one in which I have come across an impacted mass of round worms; but it is surprising that more cases do not occur, as the majority of the children in these islands are infected with worms, and frequently scores will be evacuated after a single dose of santonin.

A creole girl, 8 years old, was sent to the Victoria Hospital, St. Lucia, on Sept. 20th, 1916, supposed to be suffering from appendicitis. She was a healthy and intelligent-looking child and gave a history of having had abdominal pain, with some vomiting, for two or three days. On admission the temperature was 100° F., pulse 112. In the right iliac region a slight swelling could be seen, and the abdominal wall over this area was rigid and tender on palpation and dull on percussion.

The diagnosis of appendix abscess was made and laparotomy performed shortly after admission. On opening the abdominal cavity a small quantity of straw-coloured peritoneal fluid escaped. Small intestine immediately presented itself through the wound, and it was seen to be densely packed with round worms. The lower eight inches of ileum was so tightly packed with worms that the intestinal wall was stretched and transparent. The appendix, which was normal, was not removed, though worms were felt in the large bowel.

The operation wound was closed and the child returned to bed. A rest for two days was given before santonin treatment was commenced, with the hope that the manipulation of the bowel during the operation would cause the mass of worms to disentangle.

Santonin was given on the evening of Sept. 22nd and repeated frequently. On the 23rd 4 worms were passed, on the 24th 9 were vomited and 2 passed, and on the 25th 14 were passed per rectum. On Oct. 5th 57, and on the 8th 62, were passed. Up to the 11th 177 large round worms had been evacuated. On the 17th a mass could be felt in the sigmoid, and on the 19th 35 worms were passed, making in all a total of 212.

Patient was discharged from hospital quite well on Oct. 29th.

NOTES ON CASES OF MUCOUS COLITIS TREATED WITH CHARCOAL.

BY T. B. BROADWAY, M.B., CH.B. GLASG.

THE following two cases of mucous colitis came under my treatment some two years ago, and both after treatment with charcoal have been free from disease, one six months, the other eight months.

A farmer, aged 38, had suffered from mucous colitis for some ten years. Two years ago he consulted me, and till I placed him on charcoal I found horse serum subcutaneously injected the most efficacious remedy. This gave him relief for from six to eight weeks, when the attacks again came on. I treated him with kerol and cyllin capsules, bismuth salicylate, and careful dieting. All seemed to give some relief, but no permanent result was achieved, and I had advised him to have the bowels washed out through the appendix. About this time he was very busy, and asked if I could not give him something till he was less busy and could lie up. This request, and my remembering to have seen a couple of friends take charcoal regularly in India to ward off dysentery and diarrhœa, made me try it in this case. I gave it in 2-drachm doses four times a day after meals; he took it in water with 2 drachms of sherry to make it palatable. The first week beyond acting as a deodoriser it gave no other result, but by the end of the second week the motions had a better consistency, were less frequent, and were practically free from mucus and blood. This improvement continued till by the end of the fourth week he had only one evacuation per day, free from colic, mucus, and blood. I continued the treatment for another week and then stopped it. This was early in June and he has been free from all his former symptoms, has put on weight, and says has never felt so well in his life.

A man, aged 24, suffered similarly, and after all other remedies had failed I tried charcoal and found it act equally well with him; he has now been free from all symptoms for the last five months, has been free from all pain, can take a liberal diet, and has put on weight. This patient could not take charcoal in liquid form and had to take it as cachets.

What is the therapeutic action of charcoal in these cases? Whitla, Hale White, Lauder Brunton, and Hare state that it acts chiefly as a deodoriser and absorbent, and the two latter recommend it in flatulent dyspepsia. Hale White, however, has not much faith in it except as an antidote to alkaloids, for which it shows a special affinity. Yet in both my cases it acted almost like a charm, and this action, I think, is partly astringent and partly antiseptic. It would be interesting to know if it has been used for mucous colitis by other practitioners and if they have found any benefit from it, and, if so, what their view is as to its action. Before I tried it I found, as already mentioned, horse serum most useful, then bismuth salicylate, this combination of bismuth being the most useful in my hands, as salicylate, I find, even in ordinary administration, gives rise to constipation.

Note.—Jenner used and recommended charcoal in typhoid fever on account of antiseptic properties. My friends in India took a tablespoonful of charcoal in a tumbler of water every morning before breakfast. Since writing this article I am informed that Hurst has advocated the use of charcoal in mucous colitis.

Dorchester.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ELECTRO-THERAPEUTICS.

Surgical Diathermy.

A MEETING of this section was held on April 19th, Dr. HARRISON ORTON, the President, being in the chair.

Dr. E P. CUMBERBATCH read a paper entitled "Surgical Diathermy." He said the principle was to pass by means of the electric current heat to a considerable depth for the purpose of coagulating the growth *en masse*. The heat of the ordinary thermo-cautery did not penetrate deeply enough to be of anything like comparable value, tissue being a bad conductor of heat but a good conductor of electricity. He had experimented on dead pieces of tissue, and showed the results attained by the two methods, by electrodes or terminals of equal diameter and shape, with the aid of the epidiascope. In diathermy the tissue beneath the active electrode whitened, then bubbles of gas escaped, followed by steam, and subsequently sparks developed. This last manifestation showed that the tissue was now dry and was not conducting the current normally. Accordingly this was the stage at which to stop the application. Care must be taken not to stimulate neighbouring nerves. The effect of diathermy in vascular tissue was less deep, owing to the continual movement of blood and lymph therein. The needle was not the best form of electrode for large growths. It was not desirable to scrape or cut tissues which had been coagulated, as profuse hæmorrhage would result owing to the difficulty of coagulating blood in any vessels larger than capillaries. He had obtained the best results in the case of growths by using as the active electrode a scalpel, half an inch of the blade being left uninsulated for cutting into the coagulated tissue; this, he thought, would prove to be the most successful method of removing growths. For malignant growths of the œsophagus Mr. Harmer had devised a successful plan. Large blood-vessels and bone must not be included in the burning; the periosteum of bone was killed by the current. And in operating by this method on the larynx special care must be taken, for the onset of œdema of the glottis might cause cessation of respiration. Diathermy was not followed by shock, the rise of temperature was only slight, and the average stay of patients in hospital on whom it had been performed did not exceed a week. When done in the neighbourhood of large arteries secondary hæmorrhage had occurred. Three of the patients had died from broncho-pneumonia after diathermy, but the average number of such accidents after this procedure was much less than following ordinary surgical measures. Sepsis seldom occurred after diathermy. Adherent palate had been satisfactorily freed by the method. Of the non-malignant growths, the best results were obtained in papillomata—especially of the bladder—and nævi. Fibromata had also yielded well to it.

Dr. WILLIAM HILL said he had formed a very high opinion on the value of diathermy in dealing with some malignant growths which were not safely removable by ordinary surgical methods. In the throat region great care had to be exercised lest perforation of the œsophagus and mediastinitis occurred. Sometimes dysphagia occurred as a complication, but that could generally be overcome by intubation. He related some very gratifying cases which he had had.

Mr. NORMAN PATTERSON showed two patients on whom diathermy had been practised. In one the tongue had been removed entire on account of malignant disease in 1916; in the other the upper jaw was excised in consequence of carcinoma of the right antrum. The coming away of a sequestrum of growth a few weeks after the operation he regarded as an indication that the operator had got well beyond the disease. Secondary hæmorrhage was a real danger after diathermy; he knew of five fatal cases of this following the procedure. The removal of glands as in the parallel surgical operation was not yet universal; but it was equally necessary with diathermy. For cerebral cases meningitis was much less likely to ensue than when using the knife.

Dr. C. H. MACILRAITH spoke of the benefits of diathermy in malignant disease of tonsils, and narrated cases; he also showed a patient on whom diathermy had been practised for the condition.

Dr. IRWIN MOORE showed drawings of cases before and after diathermy, and Mr. C. R. C. LYSTER related good results from diathermy in large fungating carcinomatous masses, in malignant disease of the cervix uteri, and for lupus erythematosus.

The discussion was continued by Dr. F. HERNAMAN-JOHNSON and Dr. G. BATTEN, and Dr. CUMBERBATCH replied.

SECTION OF PATHOLOGY.

Tumours Arising in Endothelium.—Further Illustrations of Autologous Grafting.

A MEETING of this section was held on April 16th, Professor W. BULLOCH, F.R.S., the President, in the chair.

Dr. E. H. KETTLE read a paper on Tumours Arising in Endothelium. He said that the endotheliomata formed an ill-defined group of tumours, and were difficult to recognise, since the neoplastic endothelial cell possessed no distinctive properties. Some of the accepted diagnostic features were the following: an undifferentiated polymorphic-celled type of growth; a whorled arrangement of the cells, with the formation of giant cells; the close association of the tumour cells with blood-vessels; and the occurrence of narrow trabeculæ or elongated vessels which might contain blood. Some of these criteria might equally be applied to the carcinomata; others appeared to have been accepted with very little critical examination. He had been led to work through his material systematically in the hope of arriving at more definite ideas on the subject, and though his observations were far from complete he had examined in detail two tumours which were sufficiently interesting to warrant their being brought before the section.

The first tumour, a malignant endothelioma, occurred in a woman aged 44, who had suffered from elephantiasis of the right leg since childhood. In 1914 the limb gradually became extremely painful and she applied for hospital treatment. Several silk drains were inserted into the leg, but little relief was obtained, and in 1915 amputation was performed above the knee. Six months later the stump had become hard and discoloured and pain was constant, so the limb was amputated through the hip-joint. On examination a hard, hæmorrhagic new growth was found infiltrating the stump and extending up to the groin. Histologically the growth consisted of alveoli of cells having an extremely irregular shape and size, combined with large spaces which contained fluid blood. Clear indications of the nature of the growth could be seen in places, especially at the periphery where the tumour cells occurred as branching syncytial masses closely resembling vaso-formative cells or as endothelia lining vascular spaces. A constant feature was the formation of vacuoles in the tumour cells, and it was by the confluence of neighbouring vacuoles that the large spaces were formed. This vacuolation of endothelial cells had been recognised in many other pathological processes. There was no circulation through the tumour, but blood was extravasated into the tissues as the result of infiltration and rupture of the capillaries of the stroma and so passed into the spaces of the growth.

The second tumour occurred in a female child aged 4 months as a small nodule attached to the outer margin of the left erector spinæ. Microscopically it somewhat resembled an angeioma hyperplasticum, and, like the first case, it showed very clearly the process of capillary formation by vacuolation of the tumour cells, though the process here was much more regular. The tumour freely infiltrated the muscle tissue, and in this respect appeared to be malignant, but it could be shown that the tumour cells were derived from the endothelium of long complex capillary vessels which established normal connexions with healthy veins. Probably the growth was blastomatoid in nature.

It was suggested that these two conditions were examples of progressive metamorphoses of endothelium, in which the proliferated cells presented clear evidence of their origin. It was further suggested that it was only by a careful study of similar conditions that reliable standards as to what constituted an endothelioma could be arrived at.

Dr. J. A. MURRAY showed a series of charts illustrating the typical sequences which were met with in autologous grafting of malignant new growths of the mouse. In a series of 405 experiments 302 positive results were recorded. Of the 103 negative auto-inoculations death occurred in 53 before the lapse of four weeks, and could be ignored, as delay for this period was common. The significance of the remaining 50 negative results (15 per cent.) was discussed. It was shown by a study of individual charts that the negative results might be due to a variety of extrinsic causes apart from lack of vitality in the cells of the graft. Together with this latter possibility the conditions of experiment made it impossible to utilise negative results in individual cases. The occurrence of delayed positive results made the method quite unsuitable for diagnostic purposes in the human subject.

Reviews and Notices of Books.

Applied Bacteriology. Edited by C. H. BROWNING, M.D., D.P.H., Director of the Bland-Sutton Institute of Pathology, the Middlesex Hospital. London and Oxford: Henry Frowde and Hodder and Stoughton. 1918. Pp. 287. Price 7*s.* 6*d.* net.

THE latest addition to the Oxford Medical Publications is not in the ordinary sense a manual or text-book on applied bacteriology, its scope and limitations being defined by the sub-title, which runs, "Studies and Reviews of some Present-day Problems." The contributors, who are seven in number, may be described as younger representatives of the Glasgow school of pathology, the whole being ably edited and amplified by Dr. Browning. The book is addressed on the title-page to the laboratory worker, the clinician, and the administrator, and it will assuredly prove of chief interest to the trained laboratory worker, who will value it as a collection of reprints of a series of recent contributions to applied bacteriology by thoughtful and skilled observers. While cordially agreeing with the editor in regard to the advantage attending the conjunction of investigators who reciprocally appreciate the value of results obtained from clinical and laboratory standpoints, the clinician may not find it easy to sift out of these studies the matter relevant to him. The insistence on the importance of the early bacteriological examination of the blood in cases of fever is obviously addressed to clinicians, the review of recent work on tetanus was primarily written for surgeons, but taken as a whole the studies chiefly affect the laboratory worker, and the administrator, whoever he may be, will come off short.

Of the 12 chapters into which the book is divided seven are reprints or amplifications of papers which have already appeared. Five chapters from the pen of Dr. Browning deal with (1) the scope of applied bacteriology, (2) the use of calibrated pipettes in serological work, (3) the enrichment with brilliant green and telluric acid method for the isolation of typhoid, paratyphoid bacilli from fæces, &c., (4) the chemistry of antibody reactions, and (5) tetanus. Dr. J. F. Smith contributes two articles dealing with the recognition of pathogenic members of the diphtheria group and the isolation of the *B. diphtheriæ* by means of a simple medium containing telluric acid, whilst Dr. T. J. Mackie gives an account of his researches on the immunity reactions of the coli group. The remaining chapters, in which Dr. Browning is associated with one or more fellow-workers, deal with the diagnosis of enterica infections by bacteriological and serological methods, studies on antiseptics, the selective action of thallium acetate in suppressing *B. pyocyaneus* and organisms of proteus type and of thorium nitrate in permitting growth of *B. mallei*, and on some applications of the ultra-violet spectrum.

Laboratory workers will find in these studies much that is suggestive and much that is instructive, and we strongly recommend them to their careful perusal.

Premières Heures du Blessé de Guerre. By P. BERTEIN and A. NUNIER. Paris: Masson et Cie. 1918. Pp. 144. Price 4 francs.

THE personal experience of any one or two men, thoroughly conversant with their subject, is always worthy of consideration. The authors of this book have acted as regimental medical officers in the French Army since the beginning of the war, and appear to have written this book with two main objects: firstly, to describe the conditions as they existed at the beginning of the war and improvements made in the same; and secondly, to show defects which, in their opinion, could and should be rectified. In order to do this, the book has been divided under six headings.

(1) Deals with the dispositions during a modern battle; relates the conditions under which a soldier may receive his wound; and expresses the opinion that the wounded soldier receives inadequate attention.

(2) This deals with the wounded soldier, his wounds, and the rôle of the medical officer. The duties of the latter are pointed out as being chiefly placed under four headings: the necessity for cleanliness, to look after cases of hæmorrhage, to comfort and relieve shock of the patient, and to evacuate persons capable of transportation as rapidly as possible.

(3) The mode of dealing with the wounded soldier on the field. This section is largely occupied in describing various sorts of stretchers with the pros and cons for the various types, including one invented by the authors which possesses many points in its favour. It also goes on to describe first-aid methods, cases of hæmorrhage, fractures, and shock, and lastly the mode of transference of the patient to the aid-posts.

(4) *The Aid-posts.*—These are gone into very carefully and discussed under the two conditions of stationary and mobile warfare. The various stations, battalion, regimental, and divisional aid-posts, as they are known in the French Army, are described with relation to their site, mode of protection, structure, equipment, &c. Also the personnel. The function of the aid-posts is also discussed.

(5) *Treatment of wounds of war at aid-posts.*—The various sections of surgery are dealt with: (1) Infection, (2) shock, (3) hæmorrhages, (4) fractures, (5) wounds of chest, (6) wounds of brain, (7) wounds of abdomen. For the purpose for which the book is written these are quite adequately gone into. The main object is to decide the site at which certain surgical procedures should be carried, and the advice given appears to be quite sound.

(6) *Medical service in the front line.*—This is the most important section of the whole work, as it describes the defects in the present system and describes a remedy which, in the opinion of the writers, would greatly improve the medical service with the least use of medical officers. Many of the opinions expressed are good, and coming as they do from men thoroughly conversant with the conditions existing in the front line are probably of great value to those in authority.

The book is well worth reading and is of great value to medical officers in the front-line system, not so much from the point of view of details in dealing with the wounded men as in regard to the general principles that should underlie them.

JOURNALS.

The British Journal of Children's Diseases. Vol. XV. January–March, 1918. Edited by J. D. ROLLESTON, M.D.—Dr. Arnold Netter contributes a paper on Intermittent Fever of Meningococcal Origin, in which he states that meningococcal infection may assume the clinical appearance of typical intermittent fever. The febrile attacks are often, though not invariably, accompanied by an eruption, such as erythema nodosum, erythema multiforme, or purpura. In most cases, as in the one recorded by Dr. Netter, symptoms of cerebro-spinal meningitis succeed the febrile attacks, but the meningeal phenomena may be delayed for one or two months or more, or even be absent altogether. The diagnosis must be made by bacteriological examination, at first of the blood or naso-pharynx, and later of the cerebro-spinal fluid. The febrile attacks rapidly give way to serum treatment. Dr. Netter has found the intrathecal method safer than the intravenous one, although the latter is apparently the more logical method.—In an article on juvenile consumption and school attendance Mr. W. C. Rivers, tuberculosis officer of the Barnsley district of West Riding, maintains that, apart from the acute disease of infantile life, what is actually responsible for the most part of juvenile phthisis is school attendance, not by way of facilitating infection, but by the strain it throws on juvenile constitutions. The writer's personal experience and published statistics are brought forward to show the certainty with which renewal of school attendance brings about a relapse, comparable with the adult's relapse on leaving the sanatorium for his daily work. Mr. Rivers proposes as a remedy the introduction of real open-air conditions into council and borough schools on the plan of the "Waldschulen" on the continent and at places like Bostal Wood.—Dr. Parkes Weber writes on hæmangiectatic hypertrophy of limbs, congenital phlebarteriectasis, and so-called congenital varicose veins, with illustrative cases from the literature, and a bibliography of these curiosities of medicine.—Mme. G. Panayotabon, of Alexandria, records two fatal cases of pneumococcal meningitis occurring almost simultaneously in two sisters. A remarkable fact was the absence of carriers among other members of the family examined.—In his clinical notes on megacolon Dr. Charles Greene Cumston, of Geneva, describes the nature, symptoms, diagnosis, prognosis, and treatment of this condition. A bibliography of the more important literature of the subject from 1909 is appended.—In a paper on conditions simulating disease which may be produced by teething Dr. James Burnet relates three personal cases, simulating tuberculous meningitis, pneumonia, and acute abdominal disease respectively, in support of his contention that teething can give rise to serious symptoms, besides being an exciting cause of such conditions as diarrhœa, vomiting, eczema, bronchial catarrh, and strabismus, as well as of screaming fits and convulsions.—A case of

primary sarcoma of the lung is recorded by Dr. Porter Parkinson in a boy, aged 5 years, in whom the clinical signs were most suggestive of a pleural effusion. Post mortem almost the whole of the left lung was found to be a mass of soft, friable, hæmorrhagic growth firmly adherent to the chest wall, diaphragm, and pericardium. The microscopical appearance was that of a small round-celled sarcoma.—Dr. George Pernet describes a case of herpes zoster of the arm and hand in an infant aged 18 months following an attack of measles two months previously.—Dr. James B. Horgan, of Cork, discusses suppurative otitis media chronica in childhood, with an account of his technique in operating on such cases.—Mr. G. H. Waugh, of Rugby, relates a fatal case of anaphylaxis in a girl aged 17, who died five minutes after an injection of 4000 units of diphtheria antitoxin for a severe attack of diphtheria. Ten years previously she had had an attack of diphtheria, and the injection was said to have made her very ill. She had never suffered from asthma, like most anaphylactic subjects, though she had been subject to bronchial and nasal catarrh in bad weather. The only condition found at the necropsy was a general stasis with well-marked congestion of the lungs.—In a retrospect of otology Mr. Macleod Yearsley reviews the literature of pædiatric otology for 1917. The abstracts from current literature, which always form a prominent feature in this journal, deal with diseases of the new-born, diseases of the respiratory system, tuberculosis, and otology, rhinology, and laryngology.

The Military Surgeon, March, 1918.—"There are two kinds of malingerers, rascals and weaklings," writes Major P. Bailey, of the Medical Reserve Corps, U.S. Army, from the Office of the Surgeon-General at Washington, in the March number of the *Military Surgeon* (Washington, D.C., U.S.A.). Some malingerers, adepts, came from reformatories; of the others, amateurs, some wanted to get out of the service, some had read patent medicine advertisements and really thought themselves ill, being sure their varicoceles (to take an example) were hernias. Sometimes it was the parents who interfered and wrote to the Surgeon-General to tell him their dear delicate sons were unfit, though on inquiry it proved that now at last, in the Army, their boys were in perfect health. "I'm awfully sorry to hear it," was the prompt comment of a father who only wanted his son back. In detecting malingering a careful physical examination must be made, or one may be taken in, for example, by a complaint of a paralysis of a foot on which one has not noticed there are corns. Also, one must avoid putting to the patient leading questions which suggest symptoms. Malingerers are less frequent at sick parades on Saturdays and Sundays.—Major C. W. Haverkampe, Medical Corps, U.S. Army, and Captain R. A. Kielty, Medical Reserve Corps, U.S. Army, contribute a paper on the Prevalence of Ankylostoma in the U.S. Army. They examined two groups of men, one of 6159 Southern troops, of whom 24·4 per cent. were infected, the other of 3417, apparently unselected, of whom 17 per cent. were infected. A specimen of the fæces, the size of a hazel-nut, was taken with a wooden spatula and placed in a paper cup (a sputum container was found useful), and sent to the laboratory for examination. The organisation which interested the regimental officers to collect these specimens and then had them quickly examined is explained in detail, and merits praise. In the group of 6159, 33 per cent. of the infected gave a history of ground itch, but only 11 per cent. of the non-infected. Of 3922 who had gone barefoot 26 per cent. were now infected, and 69 per cent. of the infected had gone barefoot, but only 46 per cent. of the non-infected. Only 16 per cent. of the infected gave a history of continued diarrhœa, thus confirming the observation that diarrhœa is not a usual symptom of this disease. Oil of chenopodium (dose and results unstated) was the treatment employed. A typical story of the economic damage done by ankylostoma infection is given. Two young brothers took on their father's farm at his death, but they had only ill-success, crops failed, fences rotted, and the farm became heavily mortgaged. They were found to suffer from hookworm, were treated, and were cured. The farm began to flourish, crops were good, fences were kept up, and the mortgage was paid off.—Major R. I. Lee, of the Harvard Hospital, B.E.F., details the advantage of taking great care of the slight cases of an army, because they are so numerous. Many of them, he tells us, have retained foreign bodies or fractures, and incorrect decisions delay the cure of fighting men or involve unnecessary removal to the rear. Ambulatory cases, speedily recovering under skilful care, militarily well repay thorough attention, given by specialists with satisfactory equipment. He hopes to see every military hospital provided with a well-staffed, well-equipped, out-patient department.

A FUND TO MEET DR. J. H. BELL'S EXPENSES.—The expenses incurred by Dr. J. Henderson Bell in connexion with his case, apart from loss of income, will amount to upwards of £700. A fund has been established to assist him in the payment, and donations should be sent to Dr. J. Prescott Hedley, 65, Harley-street, London, W. 1.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

DORMIGENE.

(ALLEN & HANBURYS, LTD., 37, LOMBARD-STREET, LONDON.)

WE have received samples of "dormigene" in tablet and powder form. The name is an identification trade-mark for brom-iso-valeryl-urea, or as it was formerly known as a foreign proprietary "bromural." The successful manufacture of this product is now carried out under special Government licence by the above firm. The pharmacology of "dormigene" is well known. Bromine, of which it contains about 36 per cent., a statement which we have confirmed in the laboratory, is undoubtedly an essential in its composition, the drug serving as a sedative and mild hypnotic by diminishing the activity of the central nervous system. It is reported to have no action upon the respiration and circulation. In doses of 5 grains given three times daily it is employed as a sedative in functional diseases of the nervous system, in neurasthenia, and in restlessness due to disordered heart function. According to clinical reports, the drug appears to be of value in such cases, and it is satisfactory to be able to record that it can now be produced in pure colourless crystal form by a firm of English manufacturers.

OXYDOL PRODUCTS.

(NEW OXYDOL PRODUCTS, LTD., 23, FITZROY-SQ., LONDON.)

The active basis of oxydol products is peroxide of hydrogen, and it is remarkable how effectually specially prepared fats used therein act as a carrier of this antiseptic and antifermentative. We have already in these columns referred to oxydol ointment (oxydoin), used for applying the peroxide in the treatment of skin troubles and in rheumatism. The fatty vehicle melts below the body temperature and is readily absorbed, carrying with it the nascent oxygen of the peroxide. We have recently examined capsules (oxydoin) suitable for internal administration, which aim at getting the antiseptic or disinfectant effects of peroxide in the stomach. In addition oxydettes are prepared so coated that they pass through the gastric centres unchanged, the active constituents being subsequently liberated in the intestinal canal, to operate there as a check on abnormal bacterial activities. We have carefully examined these products and find that they all show the presence of active peroxide of hydrogen in important amount. It follows that in those cases in which it is thought desirable to administer an active oxidising body intact these products form a suitable means for doing so. Suppositories are also made containing the same active peroxide, and they are said to give encouraging results in the treatment of hæmorrhoids.

STAMINAL COCOLATE.

(AERATED BREAD CO., LTD., 17, 19, 21, CAMDEN-RD., LONDON.)

As microscopic examination shows, this is a simple combination of a well-prepared cocoa with a cereal flour of marked nourishing value, especially in regard to proteins, fat, and mineral salts. The cocoa contributes its quota of fat, the food containing a total, according to our analysis, of 11·72 per cent. The carbohydrates, convertible into sugar, amounted to 25·2 per cent. The theobromine, the ally of caffeine in tea, amounted to 0·48 per cent. The total nitrogen was 2 54 per cent., which, assuming all to be present as protein, gives 15·9 per cent. of that substance. Some deduction has, however, to be made owing to the theobromine and the amide nitrogen in cocoa. The moisture amounted to 7·0 per cent. and the mineral matter to 5·0 per cent. The total matters extracted by cold water proved to be 21·50 per cent. The combination is well thought out, having regard to the balance of all classes of food materials present. It gives a good food value, nowadays, for the money asked for it—namely, 2*s.* per pound—and there is practically no dilution by moisture. The total calorie value of the food is 276 per 100 grammes. In addition to the undoubtedly nourishing character of the beverage prepared from cocolate it exerts a mild stimulating effect due to cocoa principles, and this renders it to some extent helpful as a restorative in fatigued conditions.

THE LANCET.

LONDON: SATURDAY, MAY 4, 1918.

The Reliability of Serum Tests for Syphilis.

NOTHING in medicine gives greater hope for the future than the increasing precision of the means of diagnosis, whether in the sick ward or in the laboratory. Last week we devoted much space to Capt. H. MARRIAN PERRY'S remarkable study of the agglutination method in diagnosis of the enteric group of fevers. This week we should like to remind our readers that laboratory tests probably play a greater guiding part in the diagnosis and treatment of syphilis and gonorrhœa than in that of any other bacterial disease. And for a very good reason. Precision of diagnosis is of the utmost importance in both these diseases: on the one hand, failure to detect infection may be followed by disastrous effects on the individual and those to whom he may convey his disease; and on the other, a false diagnosis may inflict unnecessary hardship on the patient. But syphilis and gonorrhœa are notorious for the difficulty of establishing a diagnosis in certain of their phases by clinical methods alone, and this applies especially to syphilis. To realise this, one has only to remember the classical history of a case of tabes or of general paresis—a trivial sore, followed by complete clinical silence for a period of years, and then the advent of signs which indicate only too clearly that the patient's useful existence will shortly come to an end. If anything were needed to support this tragic illustration of the limitations of clinical methods in the diagnosis of syphilis it could be found in the frequent instances of tertiary syphilis in which a venereal history is denied, and the denial is supported by the absence of all naked-eye signs of syphilis in the past.

FAIR DEDUCTIONS AND FALLACIES.

Fortunately, within the past 12 years or so the laboratory has come to the aid of the clinician and considerably improved the accuracy of his diagnosis. The demonstration of the *Spirochæta pallida* by the microscope and the Wassermann test of the blood serum and cerebro-spinal fluid have made the diagnosis of syphilis at least as accurate as that of almost any other disease. It would be easy to quote large numbers of authors who have testified to the reliability of the Wassermann test, but it may suffice to mention the experience of HARALD BOAS of the Statens Seruminstitut, Copenhagen, who has been so prominent in perfecting its technique. This investigator reports in his own experience[1] the following positive results with the serum of syphilitic patients in different stages: Primary, 99 out of 137. Untreated secondary, 437 out of 437; secondary relapses, previously treated, 292 out of 310. Untreated tertiary, 129 out of 132. Treated latent, within the first three years, 143 out of 363; treated latent, after the first three years, 87 out of 185. Tabes, untreated, 25 out of 25; treated tabes, 15 out of 33. General paresis, 243 out of 243. On the other hand, with the serum of 1927 patients suffering from 94 diseases other than syphilis he obtained only 5 positive reactions. Three of these (out of 60 such cases) were under general anæsthesia; 1 (out of 3 such) was a case of leprosy; and 1 (out of 73 such) was a case of scarlatina. There is little wonder that syphilologists of unrivalled clinical experience the world over have availed themselves eagerly of laboratory aid and become so dependent on it for guidance in their management of syphilis. Though it cannot be denied that the laboratory has served the syphilologist well in this matter, it must be admitted that there is some little risk that the syphilologist may come to lean too heavily on it. He may lose sight of his responsibilities in the matter of clinical examination, and allow himself to be led astray, not perhaps by the pathologist's report, but by his own interpretation of the latter. An example of this error is to exclude syphilis solely on the strength of a negative Wassermann reaction, and another, which is fairly common at the present time, is to diagnose a refractory sore on the leg as a syphilitic ulcer on the strength of a positive Wassermann reaction, when the culprit is not the *Spirochæta pallida* but a fragment of shrapnel or a piece of trouser cloth at the bottom of a gunshot wound; in this instance a little reflection would show that syphilis does not protect against all injuries or other disabilities. The remedy for such errors is a closer alliance between the clinician and the pathologist. The road to a true understanding of the diagnosis and treatment of syphilis lies through the laboratory, and the clinician who will take the trouble to make himself intimately acquainted with laboratory aids to the diagnosis of syphilis will find himself recompensed for the trouble by the smoothing away of much that may be perplexing to him now.

SERUM DIAGNOSIS AND ITS NECESSARY EQUIPMENT.

With the first line of laboratory aid to the diagnosis of syphilis—the microscopical examination of exudate from syphilitic lesions—we are not at the moment concerned; its technique is simple and its interpretations obvious. The second line—the serum diagnosis—is not always so simple, either in its technique or in the interpretation of its results. It requires considerable precision of technique, for which special training is necessary; its ingredients are often difficult to prepare; and it demands the undivided attention of the pathologist for some consecutive hours if reliable results are to be obtained. Evidence of these difficulties is to be found in the amount of research which has been carried out with a view to the discovery of a simpler serum test for syphilis. We may mention in this connexion simplifications of the test itself in the form of the so-called modifications, in which the

[1] H. Boas: Die Wassermansche Reaktion. Berlin, 1914, S. Karger.

complement, or amboceptor, or both, which are present in the patient's serum, are used in place of the guinea-pig serum, and artificially prepared hæmolytic serum respectively of the original test. Such simplifications, under the names of HECHT, STERN, EMERY, BIRT, HECHT-WEINBERG, HECHT-FLEMING, HECHT-GRADWOHL, and many others, have appeared in great numbers since the technique of the original Wassermann test was published. Concerning their reliability we may quote the opinion of a subcommittee of the Pathological Section of the Royal Society of Medicine which sat in 1914 to report on the Wassermann test:—

"In the present state of our knowledge the Wassermann reaction is an empirical one. There is every reason for hoping that it may eventually be brought within the domain of exact physical chemistry and reduced to a simple chemical test. But it is the opinion of the subcommittee that until this is so the original Wassermann test, with its full controls, is the best adapted for general use, though it may be supplemented, for the control of treatment, by more sensitive short-cuts, that is, by those admittedly likely to yield a larger percentage of positive reactions."

This opinion has recently been endorsed by the Special Committee upon the Standardisation of Pathological Methods appointed by the Medical Research Committee, whose interim report[2] on the Wassermann test has recently been published. By way of strengthening the first-mentioned committee's opinion the "Standardisation Committee" has added the following:—

The committee would go further and recommend that in tests made for official returns only those methods shall be accepted which conform with the original Wasserman test as defined below, and that the so-called "short-cut" methods are only to be accepted by way of voluntary supplement to the official tests.

The committee are strongly of the opinion that it is greatly to the public interest that this recommendation made in 1914 should become effective as soon as possible, and they venture to urge that the Medical Research Committee should use their influence with the authorities of the Admiralty, of the War Office, and of the Local Government Board towards securing official action which shall make this recommendation effective, *as the minimum requirement*. It should be the universal official rule that for all Wassermann tests the findings given by the use of the original Wassermann test must be declared, with or without a supplementary report upon the results of other tests that may have been made in addition.

In speaking of the original Wassermann test it has become necessary to define the term, since, strictly speaking, nobody now carries out the test as originally described by its authors, and we may quote the definition laid down by the committees mentioned above:—

(1) The ingredients of the test (red corpuscles, "antigen," hæmolytic amboceptor, complement) are derived from *different* sources.

(2) The serum to be tested is inactivated before use. An independent "hæmolytic system" is employed, consisting of a suspension of red corpuscles, an inactivated hæmolytic serum, and a fresh normal serum containing complement. The hæmolytic values of the antiserum and complement are determined by a separate preliminary experiment.

On general scientific grounds the subcommittee is unanimously of the opinion that, since the test is a quantitative reaction, the titre of the reagents ought, within practicable limits, to be accurately known.

THE NEED OF STANDARDISATION.

Such a wide definition gives opportunity for the introduction of many and wide variations in the technique, and a glance through the literature shows a great lack of uniformity in the technique of different workers throughout the world. To quote one instance, Dr. W. M. SCOTT reported on 29 schemes submitted to the Local Government Board that they showed almost complete absence of uniformity in the details of conducting it. With such a variety of technique there can be little wonder at the discordant results with identical sera which have provoked discussion in various countries, as mentioned by Dr. J. MCINTOSH in another column of our present issue, or at the repeated demand for the establishment of a standard test. Clearly some standardisation is required if its full value is to be extracted from the test, or if, indeed, it is not to become discredited in some quarters, as Captain H. W. BAYLY warns us in his paper upon p. 632. But rigid standardisation is by no means so simple as it seems. It would not be so difficult if all concerned were content to accept a test which, though safe, gave an agreed average percentage of negative reactions with undoubtedly syphilitic sera, as probably happens with the regulation test employed in the German Army. Such a percentage of negative reactions, though small, would be rather higher than that obtained by what may prove to be the best tests at the present time. But every ardent worker at the Wassermann test has striven to improve his technique in the direction of obtaining the highest possible percentage of positive reactions, without at the same time giving non-specific reactions, and, in so doing, has introduced into his method one or more details the safety of which is doubted by others. Perhaps the following explanation may be permitted in order that the matter may be clearer.

UNANIMITY ON BROAD PRINCIPLES OF TECHNIQUE.

The Wassermann test is a quantitative test, as is demonstrated by the fact that a syphilitic serum-antigen combination fixes an amount of effective complement which is greater than that which may be fixed by a non-syphilitic serum-antigen combination. If all non-syphilitic sera in combination with antigen fixed the same amount of complement it would not be very difficult to decide quickly as to the best technique and make it standard. But in a border zone between the frankly negative (comprising almost, but not quite, all non-syphilitic sera) and the frankly positive there is a small proportion of non-syphilitic sera which, under circumstances not yet determined, fix more complement than that fixed by the average normal serum; the amount approaches closely to that fixed by many syphilitic sera, such as those of very early and of well-treated cases of syphilis. The perfect test would result in all the latter and none of the former giving a positive reaction, but such a test has not been devised. An enormous amount of research has been devoted to the narrowing of the above-mentioned border zone, but workers are still hopelessly divided as to the safety of certain of the steps taken by one or other with this object. It is safe to say that there is hardly one of these finer details of technique as to which there is unanimity of opinion at present amongst the investigators who have devoted so much of their energies to the perfection of the

[2] Medical Research Committee, Special Report Series, No. 14.

Wassermann test. To mention a few points on which there is divergence of opinion, some prefer to use guinea-pig serum obtained on the day of the test, while others consider that it should stand for 17 or 18 hours before use. Very many have found advantages from the addition of cholesterin to the antigen, while others fear that this addition may exceptionally produce non-specific reactions. A few prefer to use unheated patient's serum; others heat it just sufficiently to free it from its natural complement, hoping thus not to destroy too much of the specific reacting power. The remainder consider that this procedure leaves the tested serum liable to give non-specific reactions, and require that it shall be heated for not less than 30 or even 60 minutes. Again, conditions under which the preliminary incubation of serum, antigen, and complement is carried out have been found to affect the final result, since some sera react only under incubation at 37° C., while others give negative reactions at this temperature, but positive if kept standing at room temperature or at 0° C. prior to the addition of the blood cells. Much patient research will be required to settle these minor points of difference, and meantime the Special Committee upon the Standardisation of Pathological Methods, to whose report we have already referred, has taken the only course possible by attempting to form a base line on which those who are so minded can improve. In order to minimise those discordant results which are now avoidable they lay down a number of principles on which all workers of experience are agreed, but the neglect of which is too common at present. In regard to the technique of the test, they avoid the recommendation of any one method, but describe in detail three which have been tried on an extensive scale, and a fourth which, in their opinion, embodies the best features of the other three. Recognising the tentative nature of these recommendations as to actual technique, they decide not to hesitate in recommending each and every alteration in technique which is proved to be of value. We think that the worker who has the laudable desire to improve the Wassermann test could not do better than adopt these recommendations. After settling for himself which of the four methods is the best, by trying them on large numbers of identical sera, he would adopt this for his routine work, and then, using it as standard, judge by it the value of any modifications he might wish to introduce. It goes without saying that in such work he must be assisted by a trustworthy clinician. It would obviously be useless, and even harmful, to draw conclusions from so-called non-specific results if the clinician were not one who is skilled in the recognition of syphilis.

CRITERIA OF A PERFECT TEST.

The ultimate judgment as to the value of a given method rests on its results with border zone sera. If it trespasses into the non-specific portion of the zone it is, naturally, not to be recommended; if it retreats too far in the opposite direction it gives too many negative reactions and thus is of little assistance to the clinician. It is possible that in the end two standards may commend themselves: the first for the diagnosis of those cases in which syphilis has not previously been demonstrated, and the second for assistance in determining the persistence or otherwise of the disease. The first would be proof against non-specific reactions, but would pay for this safety in the form of a slightly lower percentage of positive reactions with syphilitic sera. The second would be graded closer to the border line, and possibly be liable to return a very slight percentage of positive reactions with non-syphilitic sera. The question arises as to the weight which a positive reaction should bear in the diagnosis, assuming that the pathologist has adopted a test which provides an ample margin of safety, and has, perhaps, guarded against an error of technique by repeating the test with another sample when the result has disagreed with the clinical findings. Captain BAYLY raises a protest against the acceptance of a positive reaction in the absence of other evidence of syphilis. There is certainly much in Captain BAYLY'S remarks as to the fallacy of attributing to syphilis every abnormal condition to be found in a patient who happens to give a positive Wassermann reaction. This is a different matter, however, from taking the responsibility of saying that the patient is not suffering from syphilis, and we quote in this connexion the following from the "Interim Report on the Wassermann Test" by the Special Committee upon the Standardisation of Pathological Methods:—

> "In the opinion of the committee there is no process of biochemical diagnosis that gives more trustworthy information or is liable to a smaller margin of error than the Wassermann test when it is performed with completeness and with proper skill and care."

In our view a positive Wassermann reaction obtained under the conditions laid down by the committee would be evidence of such weight that it could be set aside only after most careful reconsideration of the facts.

Insane Sailors and Soldiers.

A CIRCULAR (No. 79) issued by the Ministry of Pensions returns to the difficulties, which were freely discussed in the THE LANCET of Oct. 20th last, in connexion with sending disabled discharged insane sailors and soldiers to county and borough asylums through the Poor-law infirmaries. A paragraph issued by the Local Government Board on Dec. 12th sanctioned the use of a Poor-law institution as a temporary place of safety for three days pending further action under the Lunacy Act. Although this section was clearly intended to operate only in cases of emergency, its use has now become a routine practice in a number of populous areas, with the result that persons, whether discharged disabled soldiers or others, suffering from mental disorder needing asylum treatment are sent to the observation wards of Poor-law infirmaries instead of, as was originally intended by the Act, direct to asylums. The Minister of Pensions is anxious that in dealing with pensioners effect should be given to the procedure contemplated when the Act was passed. He points out that the relieving officer has a statutory duty enabling him to take the case directly to the asylum without resort to the Poor-law infirmary, and the Local Pensions Committees are asked to see that this course is adopted.

Annotations.

"Ne quid nimis."

THE "CENTRAL MEDICAL POOL."

THE report of Mr. S. G. Warner, President of the Society of Actuaries, submitted to the British Medical Association, after a close examination of the constitution of what is quaintly termed the "Central Medical Pool," discloses nothing in the methods of calculation adopted that is prejudicial to the medical profession; it affirms the contention of the Commissioners that an approximate estimate and not an exact count of individuals insured is the only practicable way of determining the amount for payment into the Central Pool. Under the normal system, instituted before the war, many of the items, Mr. Warner points out, can be made exact, although the largest and most important cannot. This is the card count, which allows a full year's payment to the pool for all cards received at the central department in respect of the first half year, and takes no account of the second half year. After discussing this point in detail the conclusion is arrived at that the protection afforded to the Central Pool by the card count system referred to is adequate, and results in the pool receiving its full quota of payment. The modifications rendered necessary by war conditions necessarily take into consideration a reduction for enlisted men, combined with a set-off for the men who have been discharged; and through figures supplied by the War Office a near approach to exactitude is stated to have been possible so far as figures relating to the Army are concerned. The principles of calculation adopted for the first year of war are certified by Mr. Warner to be fair and capable of adaptation to circumstances which may change in subsequent years. He concludes this portion of his report by stating, without reservation, that the solution of the difficult problem before the Commissioners has been successfully arrived at; he adds that in a process of such magnitude and complexity some difference of excess or defect from the exact figures may appear, but that the amount of such difference must be unimportant in comparison with the size of the figures involved. In going into other questions arising out of the same subject, it is found, among other matters, by Mr. Warner that the Central Pool represents every variety of insured person to whom medical treatment has to be afforded. The details of his report are, however, hardly capable of being summarised, as they are presented in the original in terms as brief as would be consistent with lucidity, and should rather be studied in the original document. It is to be noted that he closes his report with an expression of his recognition of the great difficulty of the problem dealt with, and points out that a scheme of such magnitude as that which the Insurance Acts have rendered necessary would, in any circumstances, have been far from easy to work in its early stages, but that the war conditions, which have so quickly supervened, have added enormously to the magnitude of the task. He concludes by an expression of sympathy with the doubts and difficulties felt by members of the medical profession on the panels, and asks them to dismiss from their minds the idea that causes of dissatisfaction such as may exist are to be found in any inadequacy of the Central Medical Pool. The origin of these, he considers, must rather be sought by the examination of questions arising out of the distributive operations which follow the formation of the source of supply, a suggestion which should not be lost sight of by those who feel disappointment at the confirmation which the report undoubtedly confers upon the policy adopted by the Insurance Commissioners.

TOBACCO, FLEAS, AND PLAGUE.

IN an interesting paper under the above title in the February number of the *Indian Medical Gazette* Mr. S. Mallanah, of Hyderabad, Deccan, reports that tobacco kills fleas practically instantaneously, and his suggestion is that tobacco leaves can be used as a preventive measure which will stamp out plague. He finds that when tobacco leaves are spread over the floors of houses where people sleep the fleas as they enter the rooms perish, with the result that there is no subsequent infection. In his investigations some 52 houses in highly infected areas were "tobaccoed" according to his method. The leaves were stitched on to a piece of matting and laid on the floor. The same number of houses of the same type and in close proximity were left untouched as controls. In spite of the fact that the floor was strewn with tobacco, plague here and there did break out—a fact which the writer attributes to faulty technique, while the number of houses tobaccoed which enjoyed complete immunity was certainly remarkable. Out of 52 houses which were tobaccoed only one house got infected (and that, it is stated, not through the fault of the tobacco), and out of 52 control houses seven got infected, which shows that the tobacco apparently failed in 14·2 per cent. of cases and succeeded in preventing plague in 85·8 per cent. of the cases under experiment. In conclusion, the writer expresses his firm belief that if the Government spent a fraction—he suggests one-eighth—of what it has actually spent in carrying out his method it would "save the misery and devastation of thousands of homes caused by the appalling death-rate from this calamity." Tobacco, of course, is a well-known insecticide, but we are not aware that it has before been reported as being so prompt and effective a pulicide. The method might with advantage be easily tried in cases where pulex irritans is not known to be a disease carrier but is all the same a pest.

RABELAIS IN HIS WRITINGS.[1]

Erasmus tells us of a Cambridge doctor who had invented a prophylactic of the fifth essence. In our day two Cambridge dons have been purveyors of the quintessence of Messer Alcofribas Nasier, under which name Master François Rabelais published his first books. Since Urquhart this country has produced few Pantagruelists of merit, but in our generation the works of W. F. Smith and Arthur Tilley have removed a well-merited reproach to English letters. Mr. Smith's translation is the best edition for students and general readers, and Mr. Tilley's study of Rabelais and his times is the only attempt of the kind in English. We have now the real Rabelais, freed from legend, prejudice, and misrepresentation. In the ten volumes of "Les Études Rabelaisiennes" Abel Lefranc and his colleagues have traced

[1] Rabelais in His Writings. By W. F. Smith. Cambridge University Press. 1918.

his writings to their sources, and have added many important details to our knowledge of his life. Of these illuminating studies, Mr. Smith, himself a participator, has taken full advantage in a work just issued from the Cambridge Press. First of all a humanist, Rabelais can only be interpreted by a fellow-student who knows the highways and byways of ancient literature. It will please our French colleagues not a little to find an Englishman so thoroughly at home in every detail relating to one of their greatest authors. Following an analysis of the five books is a critical study of Rabelais in his various aspects—humanist, theologian, legist, traveller, physician, &c. There are graduates or licentiates in medicine—Goldsmith, Smollett, and Keats, for example—who reached a first rank in literature, but were doctors only in name. Rabelais heads the list in the class to which Sir Thomas Browne, Oliver Wendell Holmes, John Brown, and others belong, who were actively engaged in professional work. By profession a monk, by practice a physician, he was in turn a teacher, a hospital physician, a medical editor, and a city physician. His immortal "books" were written to beguile the tedium of his patients and to help them the better to bear their sufferings in his absence. No one has ever dwelt with stronger emphasis on the personal factor in the success of the physician, and he cites the great Greek doctors to show that the physician's duty is in every way, even to the smallest particular, to consult the well-being of his patients, to whom may be communicated his cheerful bearing or the reverse. We trust this admirable study of the great Chinonais may awaken a renewed interest among us in the writings of a man who has instructed, puzzled, and amused the world, and who has helped "to pass on the torch of learning and literature to many leading spirits of other ages and countries."

THE POSITION OF TEA IN THE DIETARY.

A REMARKABLE decision in an appeal case in regard to tea was given in the King's Bench Division last week. The Court held that tea was not a food within the Food Hoarding Order, 1917. In giving judgment Mr. Justice Darling, amongst other things, said:—

"Most persons who read the definition of the Order would understand that food meant that which was eaten. The Food Controller had not mentioned 'drink' and he had not interfered with accumulations of wine, although many kinds of wine were highly nutritive. What the appellant acquired was dried tea-leaves. Nobody ate such things. Nor did anyone drink them, but the water which had passed through them—the infusion which was known as tea. The appellant did not acquire a food. She acquired that which she certainly would not eat, but that from which she would make a drink. It was giving an unnatural meaning to the word 'food' to say that it included tea-leaves. If the Food Controller had meant to prohibit persons from acquiring large quantities of tea he could have said so."

Mr. Justice Avory and Mr. Justice Shearman concurred, the former remarking that—

"Tea was not taken into the system for nourishment, but as a stimulant, and on that ground he held it was not a food."

It is noteworthy that the definition of food in the Food Hoarding Order is stated to be based on that given in Section 26 of the Sale of Food and Drugs Act, 1899, which is as follows:—

"The expression 'food' shall include every article used for food or drink by man, other than drugs or water, and any article which ordinarily enters into or is used in the composition or preparation of human food; and shall also include flavouring matters and condiments."

"Drink," however, according to counsel's statement, was omitted from the definition in the Food Hoarding Order. Section 26 of the Act was extended in 1899, we remember, in order to include such things as baking powder, salt, pepper, mustard, and so forth, which, of course, are not foods, though their main use is in connexion with foods. We are bound to accept the decision that tea is not a food, but it certainly occupies a high and important, if not essential, place in the dietary, besides which in many cases it is a valued vehicle for such foods as sugar and milk. In view of this fact public protection, it seems to us, should be afforded against anyone making a monopoly of the supplies. Otherwise a real hardship may be inflicted on a very large proportion of the community. We would point out also that while it is held that the Food Hoarding Order placed no restriction on the quantity of tea purchasable, the commodity is certainly controlled in regard to price in order to bring supplies reasonably within everybody's reach. That seems to us to afford an interesting comment on the learned judges' decision. We trust that the statement made by the appellant's counsel, to the effect that there has now been made an Order in regard to tea modifying that formerly in operation, implies that what is obviously an anomaly is now to be removed.

THE next session of the General Council of Medical Education and Registration will commence at 2 P.M. on Tuesday, May 28th.

Colonel W. T. Lister, A.M.S., will deliver his deferred Hunterian lecture on the Pathological Aspect of Certain War Injuries of the Eye at the Royal College of Surgeons of England on Wednesday, May 8th, at 5 P.M.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

SUBSCRIPTIONS TO THE SECOND APPEAL.

THE following subscriptions and donations to the Fund have been received during the week ending April 29th:—

	£	s.	d.
Dr. Bryan Densham ...	10	10	0
Dr. Gertrude Macfadyn	1	1	0
Dr. G. M. Macnamara ...	1	1	0
Dr. A. W. Tuxford ...	1	1	0
Dr. Victor Miller	2	2	0
Dr. Amy Robinson ...	2	2	0
Dr. W. B. Secretan ...	1	1	0
Dr. M. R. Gooding ...	2	2	0
Dr. J. Sephton Cooper...	1	1	0
Dr. Olive B. Falk	1	1	0
Dr. Wm. Henry White...	5	5	0
Dr. A. C. Wilson	1	0	0
Dr. H. G. Lys	1	1	0
Dr. and Mrs. Maitland Ramsay	5	5	0
Dr. H. Richardson ...	1	1	0
Dr. Fred J. Burman ...	1	1	0
Dr. James H. Stowers...	2	2	0
Dr. Margaret G. Thackrah	0	10	0
Dr. J. C. Worthington	2	2	0
Dr. Henry Malet	1	1	0
Dr. Maria Sharp	2	0	0
Dr. W. M. Palmer	1	1	0
Dr. Horace Sworder ...	2	2	0
Sir Arthur Newsholme...	5	5	0
Dr. Marianne Selkirk ...	2	2	0
Dr. Llewelyn Powell ...	10	10	0
Dr. John Watson	1	1	0
Dr. R. Murdoch Matheson	2	2	0
Capt. W. L. Pethybridge	2	2	0
Dr. J. M. Randle	1	1	0
Dr. Margaret L. A. Boileau	5	0	0
Sir Rudolph and Lady Hampden-Smith ...	2	2	0
Dr. B. R. Johnston ...	1	0	0
Dr. W. Fraser Annand	2	2	0
Dr. J. R. Ross	0	10	0
Dr. J. G. Macaskie ...	1	1	0
Surgeon E. Lloyd, R.N.	2	2	0
Dr. James B. Kelso ...	0	10	0
Mr. John D Malcolm ...	1	1	0
Dr. T. L. Kennish	2	2	0
Col. W. T. Mould	2	2	0
Dr. Winifred S Patch ...	3	0	0
Dr. G. A. Menzies	2	2	0
Sir J. Kingston Fowler	2	2	0
Dr. and Mrs. Wm. Howie	1	0	0
Dr. J. F. Wolfe	3	3	0

Monthly Subscription.

Dr. Arthur Hawkyard	0	10	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W. 1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

TUBERCULOSIS.

Colonies for the Tuberculous.

A RECENT discussion at the Tuberculosis Society[1] showed wide differences of opinion in regard to the scope and aims of tuberculosis colonies, and the symposium in the April number of the *British Journal of Tuberculosis* reveals the same divergence. Sir Clifford Allbutt and Mr. P. C. Varrier-Jones ask us frankly to recognise the fact that by far the greater number of cases discharged from the Army will never be more than "50 per cent. men," of whom it is idle to expect that they can earn a living in the ordinary competitive world. They ask for a broad conception of the tuberculosis colony as a place in which each patient is engaged in an occupation resembling as closely as possible his old trade. Under these conditions and with subsidised labour a colony may then, in their experience, consist of tuberculous patients only and in time grow to a comprehensive whole. They add:—

> Prolonged treatment during residence at a colony such as we have described will give the man the best possible chance of recovery, or, if recovery be not possible, then will permit of the life spent in favourable surroundings with work provided in specially constructed workshops, and the general community will know that it is being protected from sources of infection.

This wide and comprehensive view, if accepted, covers most of the objections raised by other writers, except those who feel with Sir StClair Thomson that the results of colony treatment are not commensurate with the expense incurred. This school would prefer to concentrate on the better education of both the public and the medical profession in the direction of preventing tuberculosis by better hygienic and social surroundings and on the provision of hygienic factories and workshops in which tuberculous subjects can safely work. Those who have had personal experience in the running of tuberculosis colonies have special claim to be heard. Dr. C. K. Millard considers that the colony on a small scale constitutes a fairly economical and beneficial method of prolonging sanatorium treatment, but one with very definite limitations. Dr. Jane Walker would limit such colonies to the natural outcome of the work of existing institutions and not encourage their inception as new enterprises. Mr. A. H. Macpherson, who as physician-superintendent of the Hairmyres Colony has had unrivalled opportunity of forming an opinion based on practical knowledge, justifies the colony in that it provides the great variety of occupations necessary to sustain the interest of the tuberculous patient, and thereby conduces greatly to his physical and mental well-being. Dr. Noel Bardswell, after weighing all that can be said for the colony, suggests an alternative policy of subsidising systematic after-care. The number is steadily growing of those who are keenly interested in the after-treatment of the sanatorium patient, and the divergence of opinion which we have noted is striking evidence of this interest.

Institutional Accommodation in London.

A recent report to the London Insurance Committee showed the number of tuberculous patients in institutions and on the waiting list for the month of April, compared with the corresponding month of last year, to be as follows:

April, 1917.			April, 1918.				
In institutions.		On waiting list.	In institutions.			On waiting list.	
Males ...	230	137	Discharged soldiers	150	356	205	362
			Civilian males ...	206		157	
Females...	107	91	Females		165	74	
Totals...	337	228	Totals		521	436	

Every case on this long waiting list has been recommended by the Committee's medical adviser for institutional treatment or observation, and to assist in coping with these 122 additional beds have been secured at nine institutions, giving a grand total of 650 available beds. This number is already in excess of that which can be provided out of the funds at the Committee's disposal if the same number of beds is to be maintained throughout the year. 100 further beds may be made available at the Downs Sanatorium, and ultimately 150, making 350 beds in all at that institution. It is suggested to use 15 beds at the City of London Chest Hospital, Victoria Park, as an observation and classifying centre, and to ask the Metropolitan Asylums Board to provide 50 beds for a similar purpose. Negotiations with the London County Council for a comprehensive scheme of residential treatment in London have so far given no practical results.

[1] THE LANCET, Jan. 26th, 1918.

The In-patient Treatment of Discharged Ex-Service Men in London.

Difficulties are being experienced by the London Insurance Committee in providing accommodation for discharged tuberculous sailors and soldiers. The number of applications for sanatorium benefit received by the Committtee during the first three months of the present year on behalf of discharged sailors and soldiers was 684, and the actual number of recommendations for institutional treatment made by the medical adviser 507. Assuming every ex-service man nominated for institutional treatment to be given twelve weeks' residential treatment, the number of beds necessary to provide such treatment would be 468, and would utilise the whole of the accommodation for males available, to the total exclusion of civilian patients. The special grant of £10 on behalf of a man on discharge from the Army is, with few exceptions, the only contribution from sources outside the Insurance Acts receivable in respect of his treatment, and does no more than pay for five or six weeks' treatment; and while the total cost of the treatment of discharged sailors and soldiers who are uninsured and are in receipt of incomes *exceeding* £160 per annum is paid by the Pensions Ministry there seems no good reason why the same should not be done in the case of incomes of less than £160. How severely the exclusion from institutional treatment presses on the civilian patient may be gathered from an extract of a letter received from a civilian contributor for whose treatment under existing conditions the Committee were unable to make early arrangements:—

> The tuberculosis officer has applied on my behalf for sanatorium benefit during the last six months, when I left the —— Hospital on Oct. 18th last, after being an indoor patient for six weeks. Greatly improved in health, I went back to work whilst waiting for sanatorium benefit, but was unable to stand the strain of heavy work, and had to give up about the middle of January last. I am told that there are a lot of soldiers waiting for this benefit, men who have lost their health in the service of their country. I, too, have lost my health in the service of my country, having been employed as a ship's plumber from a few weeks after the outbreak of war, and I put it down to the exposure to all weathers in the docks and on the river, and also to working day and night on Admiralty work, that my health has broken down. Cannot something be done for me to enable me to get back to work again as soon as possible?

In order to act fairly to both classes of patients the Insurance Committee proposed to restrict the accommodation for discharged sailors and soldiers to such as could be secured out of the special grants, &c., receivable in respect of them, and to reserve 400 beds for the treatment of applicants who had not served in the Navy or Army during the present war, or, having so served were not tuberculous on discharge. The situation may, however, be relieved by a new arrangement for sanatorium benefit proposed for the year 1918, under which the Insurance Commissioners hope to be in a position to supplement the existing funds by a special Exchequer grant given in consideration of the continuance of war conditions.

The Pensions Ministry and Discharged Tuberculous Soldiers.

In reply to a recent question in the House of Commons, whether any home had been provided for discharged sailors and soldiers suffering from consumption at which they could be kept for more than three months, Mr. Hodge, Minister of Pensions, stated that the responsibility for securing the necessary treatment in cases of tuberculosis fell primarily on the Insurance Commissioners. In cases of advanced disease, however, in which the danger of infection of other members of the family arose, the Pensions Ministry had undertaken to defray the entire cost of treatment for whatever period it might be necessary, and steps had been taken to secure the additional accommodation required.

The Medical Examination of Recruits.

The difficulty is notorious of deciding in the case of a recruit with a history of tuberculosis whether he should be passed as fit for military service, and, if so, in which grade. Dr. L. S. Burrell writes to us that the difficulty is specially present in the case of the Russian Jew, who usually brings a certificate stating that, in his doctor's opinion, he is consumptive, and often an X ray report supporting this

opinion. When after the recruit has been sent to a special hospital for an opinion and sputum examination he is eventually passed as fit, he often appeals and thus much time is wasted. Dr. Burrell proceeds:—

> It occurred to me that any doubtful case might be sent to some camp for a few days or a week and there watched. Then the medical board should not reject a man for pulmonary tuberculosis, unless he is consumptive beyond all doubts with T.B. in his sputum. Any doubtful case would be graded by the board as if non-tuberculous, but referred to the camp where the grade would be allowed to stand, unless the recruit was proved to be tuberculous, in which case he would, of course, be rejected as permanently unfit.
>
> Such a camp would not only save time, but would relieve the medical boards, the special chest hospitals, and the appeal boards. By this means many men certified to be consumptive would, I believe, be found to be fit, and any genuine case of pulmonary tuberculosis would be detected.

Dr. Burrell's suggestion would, we think, meet a rather pressing need.

Remedies, Old and New.

In his report as tuberculosis officer for the Soke of Peterborough for the year ending August 31st, 1917, Dr. Christopher Rolleston records his personal impressions of certain therapeutic measures in common use in the treatment of tuberculosis. He writes:—

> As a result of enlarged experience much greater stress has been laid upon the importance of rest and of exactly indicating to each patient the amount of exercise that may be taken. During the year tuberculin was administered to 27 cases, in 17 some benefit was derived and in 10 no benefit was noted. I think there is evidence of the value of this remedy in cases of ulcerating gland disease and bone disease. The following remedies have been given a further trial and discarded: pneumosan, Spengler's immune bodies, and nascent iodine. The inhalation treatment with the Burney Yeo respirator has been continued and is of definite value. Creosote has been largely used during the year and is, I think, the most useful and the most generally applicable of all drugs in pulmonary tuberculosis.

He goes on to state the results of the application of artificial pneumothorax in a series of 11 advanced cases.

> In four it failed altogether owing to remote or recent pleurisy. In another case a good pneumothorax was produced, but the patient refused to submit to further treatment. In the remaining six great benefit has been noted. Four of these are briefly summarised.
>
> 1. Female, aged 28. The whole of right lung involved, a cavity extending throughout the whole of it. Pulse-rate 120. Temperature frequently 101° F. Rest and open-air treatment of no avail. Blood brought up in large quantities. Expectoration excessive. Since operation temperature has been normal for months; pulse-rate has fallen to 80. There is no blood-spitting and scarcely any phlegm. Can now walk eight miles.
>
> 2. Discharged soldier. Two periods of sanatorium treatment with little benefit. Frequent attacks of bleeding from the lungs. Started work but a sharp attack of bleeding ensued. Since operation no bleeding has occurred, appetite improved, cough and expectoration greatly lessened.
>
> 3. A young woman recently confined; constantly coughing, expectorating several ounces of phlegm a day, diarrhœa six or eight times a day. Since operation expectoration absent and diarrhœa ceased. Pulse-rate, which varied, diminished from 120 to 80 and the patient is able to get about.
>
> 4. Woman unable to sleep owing to irritating cough with excessive phlegm. Pneumothorax. Since operation no phlegm, cough and appetite greatly improved.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Inter-Allied Surgical Conference.

AT the fourth session of the Inter-Allied Surgical Conference for the Study of War Wounds, recently held at the Val-de-Grâce, the questions chosen for deliberation were as follows: (1) transfusion of blood, its indications and technique; (2) the diagnosis, physiology, pathology, and treatment of trench-feet; (3) the treatment of wounds of the pelvis, especially those involving rectum and bladder; (4) the treatment of pseudarthrosis; (5) conservative methods in the treatment of gunshot wounds of the foot; (6) osteo-synthesis in the treatment of fractures; (7) an analysis of the methods of sterilising wounds.

The Cicatrisation of Gunshot Wounds.

M. Auguste Lumière's attempt to determine the principles governing the cicatrisation of external wounds, particularly those caused by gunshot, deserves mention. In a long series of experiments he has noted the dimensions of the wounds in each direction at regular intervals under varying treatment. The first principle he deduces is that cicatrisation only makes regular progress when the dressings are prevented from adhering to the wound, a condition which M. Lumière obtains by applying directly to the wound coarse-meshed gauze impregnated with sterilised vaseline. This allows of the passage of secretions and the painless removal of dressings without damage to the tissues undergoing repair, while avoiding the implantation of torn granulations and the resulting hyperthermia, incidents which too often accompany the adherence of the dressing. In a first series of experiments the wounds were treated with ether containing iodoform and phenol, with the addition of geranium tincture in imitation of Mencière's fluid, dressings being renewed daily. Measurements of some hundreds of wounds treated thus showed that the average daily diminution of raw surface was very variable; it was more considerable the larger the wound, depending principally on the shape of the raw surface, and especially upon its length, the daily diminution of breadth remaining practically constant. The absolute rate of cicatrisation appeared to be constant—that is to say, healing was as rapid in the later as in the earlier stages. The time required for cicatrisation was found to be proportional to the maximum breadth of the wound. Another series of experiments was made with various modes of dressing. In the case of non-adherent antiseptic wound dressings applied daily, the patients being 20 and 30 years of age, the average daily diminution in width of the wound was about 1 mm. When, other conditions remaining the same, the dressings were only renewed once a week, cicatrisation was retarded, the wounds being found more frequently to harbour bacterial growths under these conditions. When the aseptic method was employed, the wounds being simply flooded with normal saline, healing was somewhat more rapid than when the ethereal solution was used, the average daily reduction of width being from 1·2 to 1·3 mm. From time to time an arrest in the healing process or even a retrogression occurred owing to accidental contamination of the wound in spite of careful dressing. The best results were obtained by the use of starch iodide as an antiseptic; its use in certain cases resulted in a diminution in the breadth of raw surface of 1·6 mm. a day.

The Toxicity of Eggs.

At the Academy of Medicine M. Linossier recently dealt with the vexed question of the toxicity of eggs, which has resulted in their exclusion from certain dietaries, especially those intended for cases of albuminuria and enteritis. M. Linossier's experience is that the toxic effects result in a majority of cases from predisposition, often existing from birth, or arising from hepatic and intestinal disturbance. The toxic substance appears not to be one of the chemical principles of the egg, but rather a toxalbumin which can be destroyed by heat. It therefore suffices in the case of toxic predisposition to boil the egg until the albumin, both of yelk and white, is fully coagulated. This has the further advantage that the boiled egg is more readily attacked by the gastric juice than the raw albumin. Eggs thus treated present no danger except that of slightly augmenting the cholesterin in the blood. On this account their use should be restricted to one a day in cases of lithiasis or bilious tendency, but not for hepatic trouble or albuminuria, except in the case of interstitia nephritis, on account of possible complication with lithiasis.

Extension of the Season at the French Spas.

French spas have naturally suffered much owing to war conditions. The majority of their patrons have been prevented from paying their usual visit, and in most cases the large hotels which were converted at the beginning of the war into hospitals are still retained for this purpose. At the present time there is a considerable movement towards the revival and extension of the spa after the war, when it is estimated that the number of visitors will be largely increased by those who formerly visited Austrian and German health resorts. Better organisation and greater utilisation of the available resources are being planned. In addition to the extension of thermal establishments, where accommodation has long been inadequate, the erection of laboratories and physiotherapeutic institutions is in contemplation. M. Albert Robin, President of the Syndicate of Balneologists, has brought forward a project which has met with general approval to increase the duration of the thermal season, beginning in the spring and closing with the onset of winter. While many visitors are obliged to take their cure during the vacations, it is believed that a larger number would gladly choose another period if the establishments were open, in order to avoid the overcrowding and enhanced prices of the "season."

April 29th.

URBAN VITAL STATISTICS.

(Week ended April 27th, 1918.)

English and Welsh Towns.—In the 98 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality was 15·9, against 16·1 and 15·4 per 1000 in the two preceding weeks. In London, with a population exceeding 4,000,000 persons, the death-rate was 17·5, or 1·4 per 1000 above that recorded in the previous week; among the remaining towns the rates ranged from 5·3 in Acton, 6·5 in Southend-on-Sea, and 6·7 in Edmonton, to 23·3 in Hull, 25·3 in Rochdale, and 25·8 in Middlesbrough. The principal epidemic diseases caused 511 deaths, which corresponded to an annual rate of 1·6 per 1000 and included 211 from measles, 187 from whooping-cough, 54 from infantile diarrhœa, 40 from diphtheria, 11 from scarlet fever, and 8 from enteric fever. Measles caused a death-rate of 3·1 in Rochdale, 4·2 in Hull, 5·1 in Aberdare, and 6·5 in Barnsley; and whooping-cough of 1·9 in Wallasey, 2·0 in Aberdare, and 3·0 in Warrington. The 910 cases of scarlet fever and 1363 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were 4 above and 32 below the respective numbers remaining at the end of the previous week; there were also 13 cases of small-pox under treatment, including 3 admitted during the week. Of the total deaths in the 96 towns 162 resulted from violence. The causes of 40 deaths were uncertified, of which 8 were registered in Birmingham, 4 in Liverpool, and 3 each in Sunderland and South Shields.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality was 15·3, against 13·7 per 1000 in each of the two preceding weeks. The 330 deaths in Glasgow corresponded to an annual rate of 15·4 per 1000, and included 29 from measles, 9 from whooping-cough, and 7 each from diphtheria and infantile diarrhœa. The 85 deaths in Edinburgh were equal to a rate of 13·3 per 1000, and included 2 from diphtheria and 1 each from scarlet fever, whooping-cough, and infantile diarrhœa.

Irish Towns.—The 159 deaths in Dublin corresponded to an annual rate of 20·8, or 1·5 per 1000 below that recorded in the previous week, and included 7 from whooping-cough and 4 each from measles and infantile diarrhœa. The 147 deaths in Belfast were equal to an annual rate of 19·5 per 1000, and included 14 from whooping-cough, 5 from measles, and 1 each from enteric fever, diphtheria, and infantile diarrhœa.

VITAL STATISTICS OF LONDON DURING MARCH, 1918.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 4·9 per 1000 of the population, estimated at 4,026,901 persons; in the three preceding months the rates had been 5·3, 5·3, and 4·8 per 1000. The lowest rates in March were recorded in Hammersmith, Fulham, Chelsea, Hampstead, the City of London, and Deptford; and the highest rates in Finsbury, Bethnal Green, Stepney, Southwark, Bermondsey, and Greenwich. Twenty-one cases of small-pox were notified during the month; of these, 15 belonged to Stepney, 2 to Hackney, 2 to Bethnal Green, 1 to Poplar, and 1 to Deptford. The cases of small-pox under treatment in the Metropolitan Asylums Hospitals at the end of the month numbered 30, against 5 at the end of the preceding month. The prevalence of scarlet fever was slightly more than in the preceding month; this disease was proportionally most prevalent in St. Pancras, Finsbury, Stepney, Southwark, Bermondsey, and Wandsworth. The Metropolitan Asylums Hospitals contained 931 scarlet fever patients at the end of the month, against 1246, 1068, and 961 at the end of the three preceding months; the weekly admissions averaged 132, against 138, 132, and 111 in the three preceding months. The prevalence of diphtheria was slightly less than in the preceding month; the greatest proportional prevalence of this disease was recorded in Holborn, Bethnal Green, Stepney, Southwark, Bermondsey, Greenwich, and Lewisham. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1656, 1658, and 1665 at the end of the three preceding months, numbered 1529 at the end of March; the weekly admissions averaged 182, against 205, 199, and 211 in the three preceding months. The prevalence of enteric fever was about equal to that in the preceding month; of the 21 cases notified in March, 3 belonged to the City of Westminster, 3 to Islington, 3 to Lambeth, 2 to St. Pancras, and 2 to Stepney. There were 23 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 32, 26, and 28 at the end of the three preceding months; the weekly admissions averaged 3, against 5, 4, and 5 in the three preceding months. Erysipelas was proportionally most prevalent in Shoreditch, Bethnal Green, Southwark, Battersea, Greenwich, and Woolwich. The 17 cases of puerperal fever notified during the month included 2 in St. Marylebone, 2 in Wandsworth, and 2 in Camberwell. Of the 35 cases of cerebro-spinal meningitis, 5 belonged to Islington, 4 to Bethnal Green, 3 to Lambeth, 3 to Woolwich, and 2 each to Fulham, St. Marylebone, Southwark, Battersea, and Wandsworth; while the one case of poliomyelitis belonged to Lambeth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended March 30th the deaths of 5597 London residents were registered, equal to an annual rate of 18·1 per 1000; in the three preceding months the rates had been 16·3, 20·4, and 16·8 per 1000. The death-rates in March ranged from 12·0 in Wandsworth, 12·4 in Hampstead, 13·4 in Lewisham, 13·6 in the City of Westminster, 13·7 in Stoke Newington, and 13·8 in Fulham to 22·5 in Southwark, 23·3 in Holborn, 24·3 in Finsbury, 26·5 in Poplar, 26·7 in Shoreditch, and 27·6 in Bethnal Green. The 5597 deaths from all causes included 686 which were referred to the principal infectious diseases; of these, 264 resulted from measles, 6 from scarlet fever, 59 from diphtheria, 304 from whooping-cough, 8 from enteric fever, and 45 from diarrhœa and enteritis among children under 2 years of age. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Kensington, the City of Westminster, Hampstead, Stoke

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MARCH, 1918.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.									
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.
LONDON...	4,026,901	21	520	721	—	21	—	17	173	35	1	1509	4·9	—	264	6	59	304	8	45	686	2·2	5597	18·1
West Districts:																								
Paddington	122,507	—	7	28	—	—	—	—	4	—	—	37	3·9	—	13	—	4	15	—	—	32	3·4	204	21·7
Kensington	151,535	—	18	20	—	—	—	1	4	—	—	43	3·7	—	—	—	1	5	—	—	6	0·5	198	17·0
Hammersmith	114,952	—	14	6	—	—	—	1	8	—	—	29	3·3	—	7	—	—	6	—	3	16	1·8	160	18·1
Fulham	145,186	—	14	17	—	1	—	1	3	2	—	38	3·4	—	6	—	1	6	—	2	15	1·3	154	13·8
Chelsea	57,368	—	5	4	—	—	—	1	1	1	—	12	2·7	—	1	—	1	1	—	2	5	1·1	65	14·8
City of Westminster	122,046	—	17	21	—	3	—	—	4	—	—	45	4·8	—	1	—	—	2	—	1	4	0·4	127	13·6
North Districts:																								
St. Marylebone ...	92,796	—	12	16	—	—	—	2	5	2	—	37	5·2	—	1	—	1	5	—	3	10	1·4	144	20·2
Hampstead	75,649	—	6	8	—	1	—	—	1	1	—	17	2·9	—	—	—	—	3	—	—	3	0·5	72	12·4
St. Pancras	186,600	—	33	16	—	2	—	1	5	1	—	58	4·1	—	1	2	1	11	1	1	17	1·2	281	19·6
Islington	297,102	—	40	48	—	3	—	1	7	5	—	104	4·6	—	19	1	7	30	2	4	63	2·8	461	20·2
Stoke Newington...	47,426	—	4	10	—	—	—	—	1	1	—	16	4·4	—	—	—	2	1	—	—	3	0·8	50	13·7
Hackney	196,598	2	21	30	—	1	—	—	6	1	—	61	4·0	—	6	1	2	8	4	—	21	1·4	239	15·8
Central Districts:																								
Holborn	35,303	—	3	11	—	—	—	—	1	—	—	15	5·5	—	1	—	—	1	—	1	3	1·1	63	23·3
Finsbury	68,011	—	27	14	—	—	—	—	1	—	—	42	8·1	—	7	—	2	8	—	2	19	3·6	127	24·3
City of London ...	16,138	—	2	—	—	—	—	—	1	—	—	3	2·4	—	2	—	—	—	—	—	2	1·6	27	21·8
East Districts:																								
Shoreditch	89,675	—	8	18	—	—	—	—	9	—	—	35	5·1	—	11	—	—	25	—	3	39	5·7	184	26·7
Bethnal Green ...	107,362	2	9	34	—	—	—	1	9	4	—	59	7·2	—	31	—	5	46	—	1	83	10·1	227	27·6
Stepney	232,010	15	33	60	—	2	—	—	8	1	—	119	6·7	—	33	—	6	15	—	4	58	3·3	355	19·9
Poplar	143,443	1	16	27	—	—	—	1	9	—	—	54	4·9	—	57	—	3	16	—	1	77	7·0	292	26·5
South Districts:																								
Southwark	167,936	—	26	41	—	—	—	—	14	2	—	82	6·4	—	16	1	2	16	—	—	35	2·7	290	22·5
Bermondsey	107,635	—	19	33	—	—	—	1	3	1	—	57	6·9	—	5	—	2	19	—	2	28	3·4	174	21·1
Lambeth	272,038	—	36	39	—	3	—	—	6	3	1	88	4·2	—	10	—	3	17	—	2	32	1·5	364	17·4
Battersea	150,023	—	15	17	—	1	—	—	11	2	—	46	4·0	—	1	—	1	6	—	2	10	0·9	194	16·9
Wandsworth	300,787	—	59	55	—	1	—	2	8	2	—	127	5·5	—	6	—	4	5	—	2	17	0·7	278	12·0
Camberwell	239,461	—	32	49	—	1	—	2	17	1	—	102	5·6	—	9	—	1	13	—	8	31	1·7	299	16·3
Deptford	103,527	1	7	14	—	1	—	—	4	1	—	28	3·5	—	3	—	1	7	—	—	11	1·4	120	15·1
Greenwich	90,440	—	11	28	—	—	—	—	7	—	—	46	6·6	—	15	—	—	9	1	—	25	3·6	129	18·6
Lewisham	161,405	—	16	42	—	1	—	1	6	1	—	67	5·4	—	—	1	7	4	—	1	13	1·0	166	13·4
Woolwich...	131,942	—	11	17	—	—	—	1	10	3	—	42	4·1	—	2	—	2	4	—	—	8	0·8	153	15·1
Port of London ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Newington, Wandsworth, and Woolwich; and the highest death-rates in Finsbury, Shoreditch, Bethnal Green, Poplar, and Greenwich. The 264 deaths from measles agreed with the corrected average number in the corresponding period of the five preceding years, and included 57 in Poplar, 33 in Stepney, 31 in Bethnal Green, 19 in Islington, 16 in Southwark, and 15 in Greenwich. The 6 fatal cases of scarlet fever showed a decline of 11 from the corrected average number; 2 belonged to St. Pancras. The 59 deaths from diphtheria were 11 more than the average; the greatest proportional mortality from this disease occurred in Paddington, Stoke Newington, Finsbury, Bethnal Green, Lewisham, and Woolwich. Whooping-cough again showed, as in the three preceding months, a very marked excess over the average, the deaths from this disease numbering 304, against a corrected average of 107; this disease was proportionally most fatal in Paddington, Finsbury, Shoreditch, Bethnal Green, Poplar, and Bermondsey. The 8 deaths from enteric fever were 2 above the corrected average; 4 belonged to Hackney and 2 to Islington. The 45 fatal cases of diarrhœa and enteritis among children under 2 years of age showed a decline of 30 from the average; 8 deaths belonged to Camberwell, 4 to Islington, 4 to Stepney, and 3 each to Hammersmith, St. Marylebone, and Shoreditch. In conclusion, it may be stated that the aggregate mortality in London in March from these principal infectious diseases was 32 per cent. above the average.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

Meeting of Comitia.

AN ordinary Comitia of the Royal College of Physicians was held on April 25th, Dr. NORMAN MOORE, the President, being in the chair.

The following candidates having passed the required examinations and been approved by the Censors' Board, were admitted as Members of the College:—

Mr. W. J. Hart, Dr. Helen Ingleby, Dr. G. C. Low, Dr. A. L. Punch, Dr. W. R. Reynell, Dr. G. Riddoch, Dr. A. N. Robertson, Dr. D. R. C. Shepherd, and Dr. Eric Wortley.

On the recommendation of the Censors' Board it was resolved that Mr. Alfred Banks's licence to practise be restored to him.

Licences to practise physic were granted to 101 candidates who had conformed to the bye-laws and regulations and passed the required examinations.

The following gentlemen were elected to the Fellowship of the College on the nomination of the Council:—

Dr. Walter Broadbent, Dr. H. J. M. Playfair, Dr. S. W. Curl, Dr. F. L. Golla, Dr. A. M. H. Gray, Dr. H. B. Day, Dr. A. E. Stansfield, Dr. W. W. C. Topley, Dr. C. H. Bond, and Fleet Surgeon P. W. Bassett-Smith, C.B., R.N.

Nominated by the Council under Bye-law LXXI. Regulation 3, and proposed to the College for election to the Fellowship: Sir Walter M. Fletcher, F.R.S., and Sir George Newman, K.C.B.

The President resigned the office of member of the Committee of Management, and appointed Dr. W. Hale White to succeed him. Dr. Norman Moore having been a member of the committee since its origin a vote of thanks was accorded to him for his long and valuable services.

The PRESIDENT informed the College of the names of the Fellows nominated to serve on the committee to consider the proposed Ministry of Health.

On the motion of Dr. H. RUSSELL ANDREWS it was resolved that a committee be appointed to consider questions arising out of the "twilight sleep" method.

On the report of the Committee of Management it was resolved—

1. That the Technical Institute, Newport, which is already recognised for instruction in chemistry and physics, be recognised also for instruction in biology.
2. That Brighton College be added to the list of schools recognised in chemistry and physics.
3. That the following universities be added to the list of universities whose graduates in medicine are admissible to the Final Examination of the Examining Board in England, under the conditions of Paragraph IV., Section III., of the Regulations, viz.:—(*a*) Creighton University, Omaha; (*b*) Georgetown University, Washington; (*c*) the University of Maryland and College of Physicians and Surgeons, Baltimore.

After some formal business the PRESIDENT dissolved the Comitia.

A STATE MEDICAL SERVICE.—A meeting of the Brighton Division of the British Medical Association was held on April 25th to consider the scheme for a State Medical Service proposed by a special committee of the Division and approved at a meeting of the local medical profession held on Feb. 28th. After discussion it was resolved to commend the scheme to the Council of the British Medical Association for consideration and support. The scheme conforms in many ways to that brought forward at the Royal Society of Medicine by Major J. F. Gordon Dill, and published in substance in THE LANCET of April 20th, p. 570.

The War.

THE CASUALTY LIST.

THE following medical officers appear among the casualties announced since our last issue:—

Killed.

Capt. B. S. Browne, M.C., R.A.M.C., qualified at Edinburgh in 1908, and shortly afterwards took up medical missionary work in China, where, at the outbreak of war, he was at the Church Missionary Society Hospital at Ningpo. The award of the M.C. was recorded in THE LANCET of Nov. 13th, 1915, p. 1112.

Surg. H. N. Dale-Richards, R.N., received his medical education at St. Mary's Hospital, London, and qualified in 1917. He held the appointment of joint lecturer in biology and senior demonstrator of physiology at the Middlesex Hospital Medical School.

Died of Wounds.

Capt. H. H. Taylor, R.A.M.C., attached Royal Welsh Fusiliers, was educated at Cambridge University and at St. Mary's Hospital, London, and qualified in 1907.

Capt. H. S. Palmer, R.A.M.C., qualified at Edinburgh in 1914, and at the time he was wounded was attached to the 2nd Home Counties Field Ambulance.

Capt. E. A. Wilson, R.A.M.C., attached Rifle Brigade, was educated at Charterhouse and Christ Church, Oxford, qualifying in 1902.

Wounded.

Major W. T. Brown, M.C., R.A.M.C.
Capt. J. Steel, R.A.M.C., attached Royal Sussex Regiment.
Capt. F. W. White, R.A.M.C., attached R.F.A.
Capt. R. H. C. Pryn, R.A.M.C.
Capt. Ian Scott, R.A.M.C., attached R.E.
Capt. J. Smith, R.A.M.C., attached R.F.A.
Capt. W. A. Troup, M.C., R.A.M.C., attached Rifle Brigade.
Major T. W. Clarke, M.C., R.A.M.C.
Capt. R. Donald, R.A.M.C., attached West Yorks Regiment.
Capt. H. G. Oliver, M.C., R.A.M.C., attached Cheshire Regt.
Capt. M. R. Graham, Canadian A.M.C.
Capt. D. L. Kennedy, Canadian A.M.C.
Lieut.-Col. A. C. Rankin, Canadian A.M.C.
Capt. G. Wilson, Canadian A.M.C.
Capt. M. Avent, R.A.M.C., attached K.R.R.C.
Capt. G. D. Latimer, R.A.M.C., attached R.F.A.
Capt. T. Bennett, R.A.M.C., attached Liverpool Regiment.
Capt. F. G. Foster, R.A.M.C., attached R.F.A.
Capt. T. McEwen, M.C., R.A.M.C.
Capt. A. R. Oram, R.A.M.C., attd. Northumberland Fusiliers.
Capt. R. I. Sullivan, M.C., R.A.M.C., attached York and Lancs Regiment.
Major W. S. Garnett, Australian A.M.C.
Capt. C. G. Skinner, R.A.M.C., attached Dorset Regiment.
Capt. W. B. Tannahill, R.A.M.C., attached Royal Irish Rifles.

Prisoners in German Hands.

Capt. A. G. Bissett, M.C., R.A.M.C.
Lieut. O. Le F. Milburn, R.A.M.C., attd. Royal Dub. Fus.
Capt. D. R. E. Roberts, R.A.M.C.
Capt. H. A. Sandiford, R.A.M.C., attached Lancs Fusiliers.
Capt. W. Warburton, R.A.M.C., attd. Royal Dublin Fusiliers.
Capt. H. Crassweller, R.A.M.C., attd. Royal Sussex Regt.
Capt. E. H. Griffin, D.S.O., M.C., R.A.M.C.

Missing.

Surg. W. A. McKerrow, R.N.
Capt. W. J. Isbister, M.C., R.A.M.C., attd. Border Regt.
Lieut. J. F. Hornsey, R.A.M.C., attd. Shropshire Light Infantry.
Lieut. E. S. Phillips, R.A.M.C., attd. Royal Fusiliers.
Capt. C. C. G. Gibson, R.A.M.C.

Previously reported Missing, now reported Prisoners in German Hands.

Capt. P. B. Corbett, R.A.M.C., attd. Northumberland Fus.
Capt. A. T. I. MacDonald, R.A.M.C.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported:—

Lieut. J. B. L. Loudon, Cameronians, killed in action, elder son of Major J. L. Loudon, R.A.M.C., of Hamilton, Lanarkshire.

Flight-Lieut. G. R. J. Parkinson, R.N., killed while flying on patrol duty, only son of the late Dr. Parkinson.

Lieut. A. B. G. T. Chamberlain, R.N., killed in action, only son of Dr. E. T. Chamberlain, of Billingshurst, Sussex.

Second Lieut. C. W. Elliott, Royal West Surrey Regiment, killed in action, adopted son of Dr. W. E. Risdon, of Horsell, Woking.

Lieut. Commander A. L. Fenner, R.N., drowned, son of Dr. R. Fenner, of Manchester-square, London.

Capt. A. L. Millar, Rifle Brigade, killed in action, only son of Dr. J. Millar, of Nottingham.

Lieut. R. G. Stanton, Royal Marines, died from pneumonia when progressing favourably from wounds, eldest son of Dr. W. E. Stanton, of Market Deeping, Lincs.

Lieut. R. S. H. Saunders, R.F.A., died of wounds, only son of Capt. C. H. Saunders, R.A.M.C., of Southampton.

THE HONOURS LIST.

The following appointments in recognition of meritorious services in Mesopotamia are announced :—

C.I.E.—Maj. (Brevet Lt.-Col.) C. M. Goodbody, D.S.O., I.M.S.; Maj. (temp. Lt.-Col.) J. G. G. Swan, I.M.S.; Maj. W. D. H. Stevenson, I.M.S.

The following are the statements of service for which the decorations recorded in THE LANCET of Dec. 22nd, 1917, p. 951, and in THE LANCET of Jan. 26th, 1918, p. 158, were conferred. All are members of the R.A.M.C. unless otherwise stated :—

Bar to the Distinguished Service Order.

Temp. Surg. WILLIAM JAMES McCRACKEN, D.S.O., M.C., R.N.—For conspicuous gallantry and devotion to duty in tending and evacuating the wounded in the open under heavy shelling. Hearing that there were many wounded lying in mud and water in shell-holes, he led up two platoons with stretchers. When they were fired on he made them take cover and himself advanced through the enemy's fire, bearing a Red Cross flag on his walking-stick. This the enemy eventually respected, and so he was able to clear the area of wounded. By his courageous action he saved many lives.

Temp. Capt. (Temp. Lieut.-Col.) CHARLES DERWENT PYE-SMITH, D.S.O., M.C.—For conspicuous gallantry and devotion to duty when in command of the three field ambulances of the division during ten days' operations. Though the weather conditions were abnormally bad and a large number of the wounded of another division had not been evacuated, owing to his constant presence and influence all the wounded were got away promptly and without assistance from the infantry.

Distinguished Service Order.

Temp. Capt. ARCHIBALD STIRLING KENNEDY ANDERSON, M.C.—For conspicuous gallantry and devotion to duty. Under heavy shell fire he led forward a party of stretcher-bearers and collected 25 wounded men who were lying within 50 yards of the enemy line. He set a splendid example of courage and self-sacrifice.

Temp. Capt. JAMES THORNLEY BOWMAN.—For conspicuous gallantry and devotion to duty. During an attack he attended to the wounded for five hours in the open under heavy fire. He showed the greatest coolness and courage throughout the day.

Capt. WILLIAM HENRY COLLINS, Australian A.M.C.—For conspicuous gallantry and devotion to duty. Finding that his regimental stretcher-bearers were unable to find a regimental aid-post which he had established in a German "pill-box," he personally led the first party of them through an intense artillery and machine-gun fire barrage. Although knocked down by a bursting shell, he immediately resumed the dressing of the wounded. Although, owing to casualties, he had only two men to help him, he courageously persevered with his work and himself helped to excavate a dug-out for the wounded under heavy shell fire, during which several of the wounded were killed. He remained on duty for 60 hours, and refused to leave his post till the last wounded man had been evacuated. By his constant cheerfulness under the most adverse conditions, and by his utter disregard for his own safety, he kept up the spirits of the wounded and stimulated his surviving helpers to their utmost effort.

Capt. GEORGE VERNON DAVIES, Australian A.M.C.—For conspicuous gallantry and devotion to duty in going forward through an intense barrage and establishing a regiment aid-post in an advanced position, remaining on duty continuously for 54 hours, often working in the open under heavy fire. When the aid-post was hit by a shell he extricated a man who was buried, and continued his work. He remained for 15 hours after the battalion was relieved till the last man was carried back to safety and set a magnificent example to all.

Temp. Capt. HOWARD BOYD GRAHAM.—For conspicuous gallantry and devotion to duty. During a heavy barrage he personally reconnoitred the advanced aid-posts with the result that many cases were evacuated the moment the barrage lifted. This action undoubtedly saved many lives. On another occasion he went out and brought in two officers and four other ranks who were lying out unattended. Later, hearing that an officer had become a casualty he went forward and brought him back single-handed to a point where he was evacuated. His coolness, fearlessness, and devotion to duty were beyond praise.

Major ERIC LLOYD HUTCHINSON, Australian A.M.C.—For conspicuous gallantry and devotion to duty when in charge of the evacuation of wounded from the forward area. He led a relief of stretcher-bearers over a track knee-deep in mud, and at times over his waist in water. Another time he led a party through an intense barrage, thus relieving a temporary congestion of the wounded. He had very little rest during the whole four days.

Temp. Capt. WILLIAM HOWARD LISTER, M.C.—For conspicuous gallantry and devotion to duty as bearer officer, taking parties to the regimental aid-posts, though they suffered heavy casualties on the way. When a regimental medical officer was wounded he attended to the wounded of this battalion, searching our lines and "No Man's Land" from midday to dark for wounded, and then returned to his field ambulance for another 12 hours' work until relieved.

Major PHILIP ALAN MAPLESTONE, Australian A.M.C.—For conspicuous gallantry and devotion to duty. When in charge of all stretcher-bearers and forward posts he showed the utmost coolness under very heavy fire, during which several shelters were hit. By his example he prevented any panic and prevented serious casualties from gas-shells. Although gassed himself he remained on duty till the forenoon of the following day, having been on duty for over 30 hours. Even then he refused to be treated as a casualty, but after a short rest he returned to the advanced dressing station and carried on his duties.

Capt. (Acting Lieut.-Col.) ROBERT THIN CRAIG ROBERTSON, Spec. Res.—For conspicuous gallantry and devotion to duty. When two ammunition lorries were hit by enemy shells he went forward at great risk to where several men had been killed or wounded, dressed their wounds, and had them evacuated. He displayed great initiation and cooiness.

Temp. Capt. HARVEY GORDON YOUNG, Canadian A.M.C.—For conspicuous gallantry and devotion to duty in an attack. He went forward with a stretcher squad through a heavy barrage and established an advanced aid-post. For two days he was untiring in his work of attending to the wounded and getting them in from advanced areas with complete disregard of danger. By his skilful organisation and untiring energy he attended to and evacuated over 400 cases in two days.

Second Bar to the Military Cross.

Temp. Capt. GEORGE D'RASTRIK CARR, M.C.—For conspicuous gallantry and devotion to duty. He reconnoitred a route for his bearers under heavy shelling. From 4 A.M. till late the following evening he was continually under heavy fire between his collecting-post and the regimental aid-post. His constant knowledge of events in the first line enabled only the requisite number of bearers to be used in the more dangerous parts.

Bar to the Military Cross.

Capt. RICHARD THOMPSON CÆSAR, M.C.—For conspicuous gallantry and devotion to duty in evacuating the wounded. Under very heavy and continuous fire he systematically searched the battle-field from shell hole to shell hole for wounded until he could report that all casualties had been removed.

Temp. Capt. JOHN MAITLAND FORSYTH, M.C.—For conspicuous gallantry and devotion to duty in going up to the front line several times to search for and tend the wounded under heavy shelling and sniping. It was owing to his tireless energy that the casualties, which were very heavy, were so well evacuated. His aid-post was twice hit by shells, one causing nine casualties to his bearers.

Capt. CYRIL JACOBS, M.C., Spec. Res.—For conspicuous gallantry and devotion to duty in forming his dressing station under heavy fire. It was once blown in on top of him and five casualties occurred, but he remained at his post and managed to evacuate all wounded. On the following day he cleared the battle-field in spite of heavy fire, and brought back 20 badly wounded cases.

Temp. Surg. JAMES NESS McBEAN ROSS, M.C., R.N.—For conspicuous gallantry and devotion to duty in attending wounded in the front line under heavy fire, until himself severely wounded.

Temp. Capt. DAVID HENRY RUSSELL, M.C.—For conspicuous gallantry and devotion to duty in successfully evacuating a large number of wounded under constant shelling and in very bad weather conditions. He frequently helped to carry wounded, although himself exhausted.

Capt. DAVID MacDONALD STEELE, M.C., Australian A.M.C.—For conspicuous gallantry and devotion to duty when in charge of the evacuation of the wounded from a whole divisional front during 13 days' operations. On several occasions, when it was impossible to bring casualties through by the existing route, he personally inspected the new line of evacuation on each occasion, and made admirable arrangements for getting them clear and avoiding further casualties.

Capt. ROBERT BELL STEWART, M.C., Spec. Res.—For conspicuous gallantry and devotion to duty. He successfully carried out the evacuation of the wounded from the regimental aid-post, over extremely bad ground, and under very heavy fire.

Temp. Capt. FRANCIS RUTHVEN THORNTON, M.C.—For conspicuous gallantry and devotion to duty when in charge of bearers, evacuating the wounded under very adverse weather conditions. When, owing to an intense barrage, bearers repeatedly failed to get through to the advanced regimental aid-post, he personally led them forward and remained there for ten hours, evacuating 36 serious cases.

Temp. Capt. PHILIP RANDAL WOODHOUSE, M.C.—For conspicuous gallantry and devotion to duty. When the battalion was formed up in the assembly area all the battalion medical staff except himself were wounded. He carried the medical haversacks all day and tended the wounded under fire. He was slightly wounded, but continued to work single-handed for two days.

The Military Cross.

Capt. WILLIAM FREDERICK ABBOTT, Canadian A.M.C.—For conspicuous gallantry and devotion to duty when in charge of the ambulance bearer parties in the advanced area during an attack. For 36 hours he was constantly on duty, most of the time in the open and under fire. He successfully attended the wounded and cleared them from his post, and also assisted the battalion medical officer, besides making repeated trips to the front line to clear wounded from the battlefield.

Temp. Capt. EVERARD CECIL ABRAHAM.—For conspicuous gallantry and devotion to duty when in charge of a bearer division during seven days' operations. The rapid and efficient clearing of wounded from the field was largely due to his efforts. During a heavy gas-shell bombardment he led his bearers through the barrage to rescue men affected by the gas.

Temp. Capt. WILLIAM ROBERT ADDIS.—For conspicuous gallantry and devotion to duty in superintending the clearing of wounded from regimental aid-posts. The whole area was being heavily shelled, and during the latter part of the period he was gassed, but remained at work until the relief was finished.

Capt. MATTHEW THOMAS ASCOUGH.—For conspicuous gallantry and devotion to duty in dressing wounded in the open for 48 hours, without sleep or rest, under heavy shell fire, after his shelter had been rendered untenable by four direct hits.

Lieut. ROBERT HECTOR BAXTER, New Zealand Medical Corps.—For conspicuous gallantry and devotion to duty in working for three days at his regimental aid-posts under continual exposure to shell and machine-gun fire.

Temp. Capt. ARTHUR CECIL BARKER BIGGS.—For conspicuous gallantry and devotion to duty in supervising the removal of the wounded under very heavy fire during two days' operations. It was due to his extraordinary energy that the battlefield was always kept clear of wounded, in spite of very adverse conditions.

Temp. Capt. GEORGE ALEXANDER BIRNIE.—For conspicuous gallantry and devotion to duty. In going forward with two stretcher-bearers to form an advanced aid-post he was wounded in the shoulder by a piece of shell, one of the stretcher-bearers being killed at the same time. He continued dressing the wounded in our most advanced line, and even penetrated the enemy line of posts in search of casualties, keeping at his work until relieved some eight hours later.

Temp. Lieut. CHARLES HERBERT BOOTH.—For conspicuous gallantry and devotion to duty in tending the wounded in the open under continuous heavy shell fire. His skilful organising of stretcher-bearers was undoubtedly the means of saving many lives.

Temp. Capt. ROBERT BRIFFAULT.—For conspicuous gallantry and devotion to duty in organising an aid-post through which all casualties of the brigade and those of many other units of the division passed. He personally went up to the post and attended to men lying out in shell holes under very heavy fire. Although relieved, he actually went up beyond our forward posts to search for a wounded officer. Throughout the whole action he showed the utmost disregard for his personal safety.

Temp. Capt. JOHN FREDERICK BROUGHTON.—For conspicuous gallantry and devotion to duty in attending the wounded in an exposed aid-post under heavy fire throughout the day. He visited the advanced positions whenever he could to organise his bearers and collect wounded. After the battalion was relieved he stayed in the line all the following day to search for wounded. When the medical officer of a neighbouring battalion became a casualty he passed from one aid-post to the other under heavy fire and attended to the wounded of both battalions.

Capt. ANGUS CAMERON.—For conspicuous gallantry and devotion to duty. He attended to the wounded under constant shell fire, during which his regimental aid-post was blown up, and he had to continue his work in the open. After heavy casualties had occurred among the stretcher-bearers he organised stretcher parties from all available men, and carried in wounded men himself.

Temp. Lieut. (Temp. Capt.) WILLIAM KEALTY CAMPBELL, D.S.O.—For conspicuous gallantry and devotion to duty. In searching for wounded he and his party came under heavy fire. Ordering his bearers to take cover in shell-holes, he searched the ground by himself, calling up bearers as he required them. When moving away with the last wounded man a shell severely wounded one of the bearers. Ordering the remainder to take their stretcher case into a "pill-pox," he remained in the open with the wounded bearer till he died.

Temp. Capt. CHARLES LAUNDER CHALK.—For conspicuous gallantry and devotion to duty. This officer displayed great initiative under shell fire. When his dressing station was crowded with wounded he dressed in the open those who were unable to find cover. Through his promptitude and heedlessness of danger in dressing and clearing away the wounded he undoubtedly saved many lives during a critical period.

Temp. Capt. GEORGE EDWIN CHISSELL.—For conspicuous gallantry and devotion to duty in tending the wounded both of his own battalion and others and organising their evacuation. He worked continuously in the open for 24 hours under heavy shell and machine-gun fire. When the battalion was relieved he remained until the last man of his brigade had been taken away.

Temp. Capt. EDWARD JAMES CLARK.—For conspicuous gallantry and devotion to duty as medical officer to a battalion. Though continuously under heavy shell fire he moved about in the open attending to the wounded, and undoubtedly saved many lives.

Capt. ARCHIBALD JOHN COLLINS, Australian A.M.C.—For conspicuous gallantry and devotion to duty in organising a party of 40 stretcher-bearers, leading them through two barrages to the front line, and dressing and attending wounded under heavy fire and direct observation.

Capt. JOSEPH WILFRID CRAVEN.—For conspicuous gallantry and devotion to duty when in charge of bearer parties removing the wounded. Discovering many wounded in an old enemy "pill-box," he returned for bearers and so saved the lives of one officer and six men. During the whole time he was under severe machine-gun fire and shrapnel.

Capt. HENRY CLARKE DAVIS, Canadian A.M.C.—For conspicuous gallantry and devotion to duty as regimental medical officer. He was continually on duty for four days and nights, under heavy fire, attending to the wounded, and frequently dressed cases in the open. His courage and determination were responsible for the evacuation of all the wounded before the battalion was relieved.

Temp. Lieut. ARTHUR PHILIP DRAPER.—For conspicuous gallantry and devotion to duty. He set a splendid example of courage and self-sacrifice in attending to the wounded during an action. He went forward and attended to the wounded in the open when heavy casualties had been caused among the stretcher-bearers, and by his gallant conduct undoubtedly saved several lives.

Temp. Capt. HENZELL HOWARD DUMMERE.—For conspicuous gallantry and devotion to duty. He voluntarily left shelter and went across difficult ground under very heavy fire to help three seriously wounded men, afterwards conducting the stretcher-bearers to the aid-post half a mile away.

Temp. Capt. FREDERICK PEARSON FISHER.—For conspicuous gallantry and devotion to duty. On learning that the enemy had projected gas into one of our deep mine galleries, he descended to the bottom of the main shaft and established an aid-post there. He then advanced with his party into the gassed area and rescued several miners. He remained at his post without relief for 14 hours and saved many lives.

Temp. Capt. ALISTAIR GORDON FORBES, S. African Med. Corps.—For conspicuous gallantry and devotion to duty. After continuous dressing of 30 wounded he personally took a place in one of the squads of bearers under heavy fire of gas and other shells, and so stimulated his exhausted bearers to special efforts. Though suffering from mustard-gas poisoning he remained at work until ordered back as a casualty two days later.

Capt. HARTAS FOXTON.—For conspicuous gallantry and devotion to duty when in charge of the collection of wounded. He personally directed and visited all the regimental posts many times a day, often under heavy fire. By his energy he kept his bearers working, though exhausted, until the completion of the evacuation.

Capt. REGINALD DOUGLAS GAWN.—For conspicuous gallantry and devotion to duty. He worked untiringly, attending to the wounded under heavy fire during an attack. He made several journeys over most difficult ground to reach wounded men who were lying out in the open, and showed splendid courage and gallantry throughout.

Capt. ERIC MACALLAN GORDON-GLASSFORD, Australian A.M.C.—For conspicuous gallantry and devotion to duty in tending the wounded under intense shell fire. Finding a squad of bearers exhausted owing to the mud, he and his orderly relieved two of them and helped to carry a wounded man for three miles under shell fire. Finding that a dug-out had been hit and three men buried, he went with a couple of bearers and, in spite of heavy shell fire, succeeded in extricating the men and getting them away.

Capt. NORMAN BELL GRAHAM, Spec. Res.—For conspicuous gallantry and devotion to duty. He worked unceasingly under very heavy shell fire, attending to the wounded of several units. He organised stretcher parties, and also went out himself to attend to the wounded. He set a splendid example of contempt of danger, and undoubtedly saved many lives.

Lieut. ARTHUR ROBERT HILL, Spec. Res.—For conspicuous gallantry and devotion to duty. He attended to the wounded during an attack in a very exposed position under heavy shell fire. He often moved about over the open, searching for the wounded and assisting to remove them. He showed great coolness and resource under the most difficult and dangerous conditions.

Capt. WILLIAM BALY JEPSON, Spec. Res.—For conspicuous gallantry and devotion to duty. When a shell had smashed in battalion headquarters, although severely shaken himself, he dug out his commanding officer and the adjutant and attended to them. He continuously took stretcher-bearers to the front line in daylight through intense shell fire. He established a new forward dressing station after the battalion had been relieved and did not return till he had searched the whole front for wounded.

Capt. HUGH EDWARD KIRKLAND, Australian A.M.C.—For conspicuous gallantry and devotion to duty in attending to wounded under fire. When the enemy concentrated a heavy fire on a battery, one officer and five men being wounded, at great personal risk he went out under this fire and got them to a place of safety.

Capt. GUY ARDLAW LAWRANCE, Australian A.M.C.—For conspicuous gallantry and devotion to duty. In addition to his ordinary regimental duties he accompanied a daily convoy of 30 G.S. wagons detailed for road repair. He attended to the wounded in the open, irrespective of units, under extreme difficulties and heavy shell fire.

Temp. Capt. JOHN TRYWERYN LLOYD.—For conspicuous gallantry and devotion to duty as battalion medical officer. He frequently went forward under heavy machine-gun and shell fire to supervise the work of his stretcher-bearers.

Capt. FREDERICK WILLIAM LUMSDEN, New Zealand Medical Corps.—For conspicuous gallantry and devotion to duty in dressing wounded in the open when the regimental aid-post, which was within 700 yards of the enemy "pill-boxes" and in full of view of them, was still full of wounded left by the previous battalion. Casualties were inflicted even on the stretcher cases. Though exposed to this fire, he worked unremittingly for three days with practically no sleep and very little food until quite exhausted.

Capt. ALFRED JAMES ANGEL McCABE-DALLIS.—For conspicuous gallantry and devotion to duty. Seeing a trench some distance off being heavily shelled, although not in medical charge of the troops occupying it, he at once ran to see if he could help any casualties, and while so doing was severely wounded.

Capt. DUNCAN MACFADYEN, Spec. Res.—For conspicuous gallantry and devotion to duty. He repeatedly went out to shell-holes under heavy fire to dress the wounded and help bring them in. He attended to the wounded of another battalion in addition to those of his own. He showed splendid courage and self-sacrifice.

Capt. JOHN McGHIE, New Zealand Medical Corps.—For conspicuous gallantry and devotion to duty when in charge of bearers. Time after time he took stretcher-parties forward through heavy mud and enemy barrages to the regimental aid-post, and did not stop till he was certain that all men lying out had been collected.

Temp. Capt. JAMES MacGREGOR.—For conspicuous gallantry and devotion to duty when in charge of a bearer division. He followed up the barrage closely and evacuated the wounded under heavy fire. By magnificent work he cleared the ground of wounded before dusk.

Capt. JAMES McKAY, Spec. Res.—For conspicuous gallantry and devotion to duty in arranging the evacuation of stretcher cases from the front line. He continually dressed wounded, regardless of heavy shelling in the open, owing to limited accommodation.

Capt. JOHN SHAW MACKAY, Australian A.M.C.—For conspicuous gallantry and devotion to duty when in command of bearer division. He attended to many casualties which occurred amongst the personnel of batteries and working parties, carrying out his duties in the open with utter disregard of danger.

Temp. Capt. JAMES MURDOCH MacKAY.—For conspicuous gallantry and devotion to duty. He remained at work although suffering from gas poisoning and continually left the aid-post to direct his orderlies and bring in walking wounded cases.

Capt. HUGH AGNEW MACMILLAN.—For conspicuous gallantry and devotion to duty in passing some 600 cases through his regimental aid-post, though it was heavily bombarded. His staff being much depleted, he had to treat the majority of cases himself.

Capt. PHILIP McRITCHIE.—For conspicuous gallantry and devotion to duty. Coming upon a party of 16 men wounded by shell fire he dressed their wounds under a heavy barrage and called for volunteers to carry them to the aid-post. Hearing that his commanding officer and adjutant had been wounded about a mile away, he made his way across country under heavy fire and got them to the dressing station.

Capt. MELROSE HOLTOM MAILER, Australian A.M.C.—For conspicuous gallantry and devotion to duty. He worked for 48 hours attending the wounded in the open under most difficult conditions and heavy shell fire.

Capt. JAMES FREDERICK STEWART MARSHALL, Canadian A.M.C.—For conspicuous gallantry and devotion to duty. Hearing that there were many wounded in "No Man's Land" he called for volunteers and went forward in charge of them under intense fire. He was continuously on duty for 48 hours and brought in many wounded under most trying conditions.

Temp. Lieut. KEKHASRU SOBRABJI MASTER, I.M.S.—He pushed forward his advanced dressing station and kept in close touch with the regimental aid-posts, and collected, dressed, and evacuated the wounded. He showed great courage and coolness under heavy fire.

Temp. Capt. DAVID MATTHEW.—For conspicuous gallantry and devotion to duty during two days' heavy fighting. He established a dressing station in an advanced position, whence he continually went forward to dress wounded and organise carrying parties under heavy fire. He inspired his men to continue their work by his splendid example.

Capt. THOMAS WILLIAMSON MOORE, Canadian A.M.C.—For conspicuous gallantry and devotion to duty when in charge of bearer parties at an advanced regimental aid-post. Cases had to be attended to in the open under heavy fire, and he worked continuously for 48 hours.

Temp. Surgeon RICHARD GLYN MORGAN, R.N.—For conspicuous gallantry and devotion to duty. When wounded he carried on his duties under very heavy shell and rifle fire. Even when wounded a second time he worked with the stretcher-bearers in the open for 36 hours, until all the ground had been cleared of wounded. It was largely owing to his wonderful example and great exertions that the ground was cleared so quickly.

Capt. EDGAR PERCIVAL, D.S.O.—For conspicuous gallantry and devotion to duty when in command of stretcher-bearers. While he was leading a party of 16 towards the aid-post they came under heavy shell fire, and seven were wounded. He got them back and brought up fresh men. One of this party was wounded, and while an attempt was being made to get him back the patient and three bearers were killed. After replacing these casualties he succeeded in getting through at the third attempt and removed all the wounded.

Capt. JOHN PINDER.—For conspicuous gallantry and devotion to duty in attending to wounded under continuous shell fire. During two days and nights he worked in a shell-hole and sent back a large number of wounded men who would otherwise have died from exposure. He also went forward several times to the front line to attend to wounded men.

Temp. Capt. CHARLES LESLIE GROVE POWELL.—For conspicuous gallantry and devotion to duty in carrying on his work in the open under fire, though his advanced aid-post was a special target for the enemy's artillery. He also visited the front line when it was being heavily shelled to attend to cases that could not be moved.

Temp. Capt. MAURICE ALOYSIUS POWER.—For conspicuous gallantry and devotion to duty when in charge of a bearer division. He collected and dressed wounded under heavy fire. On the way to the aid-post his bearer was killed by a shell and he was wounded, but he succeeded in clearing his sector of wounded before dark, and then had to be assisted in an exhausted condition to the dressing station.

Capt. HENRY FREDERICK PRESTON, Canadian A.M.C.—For conspicuous gallantry and devotion to duty as regimental medical officer. He established an aid-post in a most advanced position, and worked under continuous shell fire. He set a magnificent example by his coolness and courage, and his fearlessness and untiring energy saved many lives.

Capt. WILLIAM DEMPSEY QUILTY, Australian A.M.C.—For conspicuous gallantry and devotion to duty when in charge of a bearer division. He remained at a cross-roads throughout the day attending to casualties and supervising their evacuation, though the enemy was persistently shelling the area with gas and high explosive shells.

Temp. Capt. REGINALD THOMPSON RAINE. For conspicuous gallantry and devotion to duty. During an intense barrage he went out in the open to attend to wounded, and when his stretcher-bearers became casualties he himself carried cases in. Returning later, he also brought in the stretcher-bearers, though exposed all the while to an intense shell fire. He showed a magnificent example to all, and undoubtedly saved many lives.

Lieut. (Temp. Capt.) WILLIAM LEONARD ELIOT REYNOLDS.—For conspicuous gallantry and devotion to duty in working continuously for 24 hours amongst the wounded. In addition to his work at the regimental aid-post he went to the front line frequently, by day and night attending the wounded under heavy fire.

Capt. SYDNEY DEVENISH RHIND, New Zealand Medical Corps.—For conspicuous gallantry and devotion to duty for three days and nights at his regimental aid-post, repeatedly having to attend to men outside under heavy fire. He also organised parties of stretcher-bearers for their removal.

Capt. CLIVE FREDERIC ROBINSON, Australian A.M.C.—For conspicuous gallantry and devotion to duty. On hearing while with another battery that two batteries 500 yards away were being heavily shelled with gas, shrapnel, and high-explosive shells, and many casualties were occurring, he at once went there, and in spite of the intensity of the shelling remained for an hour and a half attending to the wounded.

Capt. CHRISTOPHER ROGERS.—For conspicuous gallantry and devotion to duty as medical officer to his battalion during an attack. When his aid-post was blown in, and all his staff killed or wounded, he remained at his post, working in the open under continuous shell-fire over 20 hours, 200 cases passing through his hands. After most of his stretcher-bearers had been killed or wounded, he brought in a large number of wounded himself until he was exhausted.

Capt. JOHN GRAY RONALDSON, Spec. Res.—For conspicuous gallantry and devotion to duty while in charge of bearers for nine days, almost without rest. He several times went forward under heavy shell fire to attend to gunners who were wounded and lying in the open. During a heavy gas bombardment, in which there were many casualties, he was himself gassed.

Capt. WILLIAM JACK SCADE.—For conspicuous gallantry and devotion to duty. When there was a large number of wounded in the aid-post and no stretcher-bearers were available, he went back a distance of over a mile through a very heavy barrage, brought back stretcher-bearers and removed all the wounded. On the following day he went up to the front line under snipers' fire and brought back several wounded men. His courage and initiative were the means of saving many lives.

Capt. WALTER HEPBURN SCOTT, Canadian A.M.C.—For conspicuous gallantry and devotion to duty. He led his stretcher-bearers forward over "No Man's Land" and dressed and brought in many wounded men under very heavy fire. Although buried and severely shaken by a shell he continued his work.

Capt. SAMUEL LLEWELLYN SERPELL, New Zealand Medical Corps.—For conspicuous gallantry and devotion to duty in attending to the wounded at the regimental aid-post under heavy fire. Although twice wounded he went on with his work until ordered to hospital by his commanding officer.

Capt. WALTER LEONARD SMITH, Canadian A.M.C.—For conspicuous gallantry and devotion to duty while in charge of stretcher-bearers and posts. He did magnificent work in attending to the wounded and organising their removal, and by his fearlessness and determination set a splendid example to his stretcher-bearers.

Capt. CHARLES NIXON SMITH.—For conspicuous gallantry and devotion to duty when in charge of the collection of casualties from the whole of the divisional front during active operations. For seven days he worked unceasingly without adequate sleep or food, and it was largely owing to his personal influence that the exhausted bearers were able and anxious to remain at work for so long a time.

Temp. Capt. WILLIAM STEADMAN.—For conspicuous gallantry and devotion to duty in superintending the loading of wounded men on to the tramway, and in assisting the stretcher-bearers under heavy fire. He also repeatedly went in search of wounded, and was the means of bringing a large number to safety. Later, though gassed, he continued at duty.

Temp. Capt. FREDERICK NAYLOR STEWART.—For conspicuous gallantry and devotion to duty. He attended to the wounded during an action with utter disregard of danger, working in the open most of the day under persistent shell fire. He was untiring in his efforts on behalf of the wounded and showed splendid courage and determination.

Temp. Lieut. (Temp. Capt.) ROBERT IEVERS SULLIVAN.—For conspicuous gallantry and devotion to duty in attending the wounded under heavy fire. He organised the stretcher bearers and for 36 hours searched in front of our outposts for wounded men, thereby saving many lives.

Temp. Capt. NORMAN CHARLES TALBOT.—For conspicuous gallantry and devotion to duty. On hearing that the batteries of the brigade were being heavily shelled, he dashed forward and dressed and collected over 20 wounded men.

Temp. Capt. REGINALD HERMAN TRIBE.—For conspicuous gallantry and devotion to duty. Having organised an aid-post behind the front line, he dealt untiringly with many wounded cases belonging to several different units, his courage and efforts being the means of saving many lives and much suffering. He showed splendid determination and resource.

Capt. ROBERT FOWLER WALKER, Spec. Res.—For conspicuous gallantry and devotion to duty in tending the wounded in the open after the aid-post had become a target for the enemy's howitzers. He was severely wounded, but would not allow the bearers to remove him until he had given instructions to his N.C.O. and made all possible arrangements for the care and comfort of the wounded.

Temp. Capt. HENRY CURRIE WATSON.—For conspicuous gallantry and devotion to duty in working continuously for three days at an advance dressing station which was being constantly shelled. Although gassed he persisted in remaining at duty.

Capt. ERNEST COULTER WHITEHOUSE, Canadian A.M.C.—For conspicuous gallantry and devotion to duty. He attended to the wounded under heavy fire, going out repeatedly to bring in wounded officers and men.

Temp. Lieut. ROBERT EVERARD WHITTING.—For conspicuous gallantry and devotion to duty. He attended to the wounded during an engagement continuously for 40 hours, working most of the time in the open under heavy shell fire. His courage and devotion to duty undoubtedly saved a very large number of lives.

Temp. Capt. FREDERICK EDWARD SAXBY WILLIS.—For conspicuous gallantry and devotion to duty in tending the wounded of his own and other units in advance of our front line and in forward positions which were fully exposed under heavy fire. It was largely due to his careful training and skilful arrangements that his bearers evacuated such a large proportion of the wounded of three units from the front area during the two days.

OBITUARY OF THE WAR.

HERBERT HAMPDEN TAYLOR, M.B., B.C. CAMB.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain H. H. Taylor, who was killed on active service, as announced in another column, on April 3rd, aged 35 years, was third son of the late Robert Taylor, of Bromley. Educated at Clarence School, Weston-super-Mare, and Pembroke College, Cambridge, he entered St. Mary's Hospital, London, qualifying in 1907, and graduating in medicine at Cambridge the following year. After some varied experience in resident appointments and in country practices he joined Dr. H. C. Bartlett at Saffron Walden. Early in 1915 he took a commission in the R.A.M.C., serving a year in the Near East, and after his return being attached as medical officer to the Royal Welsh Fusiliers. It was after several days of continuous and exhausting work that he received shrapnel wounds in the arm and back, from which he died the same day after being brought back to a stationary hospital. His friends write of Captain Taylor's sunny disposition which makes his loss keenly felt.

CLAUDE HASTINGS GEORGE PHILP, B.A., M.B., B.C. CAMB.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

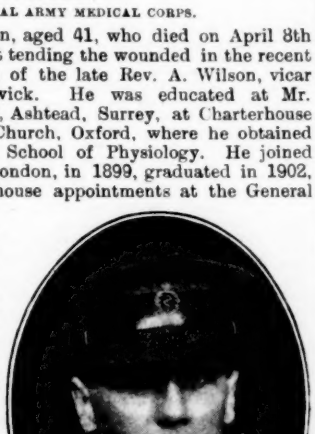
Captain C. H. G. Philp, who was killed in action in France on March 26th, at the age of 32, was only child of Hastings Philp, of Falmouth. He was educated at Falmouth College and St. John's College, Cambridge, where he was a keen member of the Lady Margaret Boat Club. He graduated B.A. in 1907 and M.B., B.C. in 1912, after pursuing his clinical studies at St. Thomas's Hospital. After holding house appointments at St. Thomas's and Herefordshire General Hospital he was appointed honorary anæsthetist to the latter and settled in private practice in the city. On obtaining a commission in the R.A.M.C. early in 1916 he did good work at a typhoid hospital, of which he was given charge, in India, falling a victim himself to the disease. On returning to the Western front he was attached to the Manchesters, and worked with them for over a year. He was struck by a shell while attending a wounded man in the open.

A brother officer writes of Captain Philp: "He worked under continuous shell fire, and successfully evacuated all his wounded"; and his colonel speaks of his bravery and devotion to duty. Captain Philp married in 1914 Margaret Fussell, who, with an infant son, survives him.

CHARLES EDGAR ANDREW WILSON, B.A., M.B., B.CH. OXF.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain C. E. A. Wilson, aged 41, who died on April 8th of wounds received whilst tending the wounded in the recent fighting, was eldest son of the late Rev. A. Wilson, vicar of Bedford Park, Chiswick. He was educated at Mr. Sidney Johnson's School, Ashtead, Surrey, at Charterhouse (Davisites), and Christ Church, Oxford, where he obtained first-class final honours, School of Physiology. He joined St. Thomas's Hospital, London, in 1899, graduated in 1902, and subsequently held house appointments at the General Hospital, Birmingham, and the Great Ormond-street Hospital for Sick Children. In 1908 he married Mary Barnes, daughter of Nicholas Mein, of Newcastle-on-Tyne, and settled in practice at Petworth. He was accepted for active service in 1916, being first attached to the Northumberland Fusiliers and later to the Rifle Brigade, and during the entire period of his service was engaged in front-line duty. He had previously been recommended for the Military Cross for conspicuous courage in tending the wounded under heavy fire, and it was whilst so doing that he was severely wounded in the spine.



Captain Wilson achieved the success in practice to which his ability and devotion to his work entitled him. A medical friend speaks of him as a man of the highest ideals and culture, who strove for the best in everything he undertook. "A delightful companion and a staunch friend, his death is a great loss to his profession and a profound grief to his friends." He leaves a widow and one young son.

Correspondence.

"Audi alteram partem."

"X DISEASE."

To the Editor of THE LANCET.

SIR,—The cases described in THE LANCET of April 27th by Dr. H. J. McCaw, Dr. J. R. Perdrau, and Dr. G. F. Stebbing, under the title "Toxic Bulbar Paralysis (Possibly Botulism"), remind me of rapidly fatal disease affecting children to which I drew attention in a paper in THE LANCET of August 2nd, 1913, and also in a report to the Local Government Board published in 1914 on an experimental investigation in relation to mumps.[1] Eventually the malady was given the provisional name of "X Disease," the exact nature of the virus being undecided.

Up to the time of the latter report 12 fatal cases of this disease had been identified; 11 of them had been admitted to St. Bartholomew's Hospital. The age of the victims varied from 10 months to 9 years. At the onset drowsiness was a prominent symptom in five cases. The illness was acute and was characterised by pyrexia, vomiting, and diarrhœa, and staring eyes with dilated pupils. Eight of the children had twitchings and six had a general fit or convulsion. Six of them had retraction of the head and in four Kernig's sign was positive. Seven of these children exhibited impairment or loss of reflexes. Five were very restless, three had delirium. The majority had from the first a very frequent and feeble pulse. After an illness varying from less than 24 hours up to as long as nine days all of them died.

In six of the 12 children the cerebro-spinal fluid was examined during life and found to be clear and to show no bacteria. In three of these fluids the cell count was normal, in two others a well-marked lymphocytosis was present. A post-mortem examination was made in each of the 12 cases. Macroscopically seven of them exhibited some swelling of the lymphoid tissue of the ileum and colon, and in all of the 11 children that died in hospital the lymphatic glands of the mesentery were enlarged, as also were the lymphatic glands in the neck. Petechial hæmorrhages were observed in two of the cases. Beyond these points little change was observed as regards the viscera. When the central nervous system came to be examined it was found to be congested. The cerebro-spinal fluid was abundant and serous, and no pus or tubercle was present. In seven of the cases there was well-marked evidence of increased intracranial pressure, the convolutions being definitely flattened. In 10 out of the 11 cases in which the heart's blood was cultivated no growth occurred, nor could any bacteria be found in the cerebro-spinal fluid post mortem. Sections were cut of the lumbar and cervical cord and of a piece of the motor cortex. In 10 of the cases the medulla was examined in the same way. Two of the cases showed a definite accumulation of lymphocytes in the subarachnoid space, confirming the result of the lumbar puncture during life; the rest were negative in this respect. Although carefully searched for no infiltration of the substance of the cord or cortex was found in any of the 12 cases. In one case, however, a definite focus of infiltration with lymphocytes was found at a point in the medulla below the floor of the fourth ventricle. In all of the cases the nerve cells showed pronounced chromatolysis, and occasionally the glia cells around them appeared to be increased.

As changes similar to these had been observed by me when examining histologically the central nervous system of monkeys that had succumbed within a few days of intra-cerebral inoculation with the virus of mumps, I was led to examine histologically the salivary glands of the first of these children, with the result that in that case, as also in all of the subsequent ones, well-marked foci of lymphocytic infiltration were found to be present in the interstitial portion of the parotid or submaxillary glands. But while acute interstitial parotitis was a constant and prominent histological lesion in these cases after death, no evidence of parotitis had been observed during life.

The injection of emulsions of portions of the central nervous system of these cases into monkeys intra-cerebrally gave negative results. Some similar injections made at the same time with like material from a child that had succumbed to a definite attack of acute polio-encephalitis, whose brain showed histologically typical infiltrative changes, succeeded in reproducing that disease. The exact nature of the virus, therefore, to the action of which the children succumbed remained undiscovered, and for this reason the disease was called by the name at the head of this communication.

I am, Sir, yours faithfully,

London, April 27th, 1918. M. H. GORDON, M.D.Oxon.

BOTULISM ?

To the Editor of THE LANCET.

SIR,—During the latter part of 1916 certain cases of illness occurred, amongst the soldiers in at least one of our armies in France, which were described, officially, as apparently examples of a "peripheral polyneuritis associated

[1] Reports on Public Health and Medical Subjects, New Series, No. 96.

sometimes with unilateral facial paralysis." The evidence alleged in favour of these cases being due to polyneuritis was weak. If my memory does not betray me, it was stated that there was muscular weakness, but that the reflexes were generally preserved, and that sensory changes were trifling. It may be worth investigating whether the fuller clinical records which are doubtless in existence suggest any relation between these cases and some of those now under observation in London and elsewhere.

I have myself had, since the third week in March, the opportunity of seeing over 20 cases in London of the kind now being described, and a few points perhaps deserve mention.

The cases all correspond to the clinical descriptions given of acute polio-encephalitis, and fall generally, pretty definitely, into the categories of polio-encephalitis superior and polio-encephalitis inferior; the words "superior" and "inferior" being used in the sense assigned to them in Purves Stewart's "Diagnosis of Nervous Diseases," pp. 82, 83. (Captain Wilfred Harris, in his communication in your issue of April 20th, I notice, speaks of the cases with apparent involvement of the motor nerve nuclei as examples of polio-encephalitis *superior*, a usage confirmed in your annotation on the subject.)

In one fatal case of the "superior" type that occurred in the North-West London Hospital under my observation there was diffuse change in the grey matter of the right cerebral hemisphere; and during life there had been weakness of the left arm and leg, associated with a drowsiness that was something less than coma.

It does not appear to be the *rule* that, in cases of the "inferior" type, ophthalmoplegia when present is bilateral, as some suggest. It is true that sometimes the ophthalmoplegia is bilateral, as may be the facial palsy, but not always. In different cases the nuclei of the third, fourth, sixth, seventh, eighth, ninth, and tenth nerves have, pretty obviously, been affected, and possibly the fifth. Nystagmus is common. Initial vomiting and headache, with a dry mouth and constipation, seem generally to occur; the degree and persistence of pyrexia are variable. A moderate lymphocytosis in the cerebro-spinal fluid seems usual, but has perhaps relation to the severity of the attack or the "area" affected.

Lastly, it may perhaps be suggested that, so far as the published evidence goes, while we are warranted in believing that a form of polio-encephalitis is at present, to a certain extent, epidemic in certain large towns in England and France (a recent paragraph in the evening papers announced the prevalence of "infantile paralysis attacking the brain," in parts of Australia, by-the-bye), we should not too hastily assume that all cases of polio-encephalitis now met with are due to the *B. botulinus*. The relation of the present series of cases to the Heine-Medin disease needs investigation, and it must be remembered that cases very similar to those now attracting attention have been not uncommon during times of prevalence of that disease.

I am, Sir, yours faithfully,

Harley-street, W., April 27th, 1918. F. G. CROOKSHANK.

To the Editor of THE LANCET.

SIR,—A case was admitted into hospital under me from Newhaven about two weeks ago which corresponds to those described by Dr. Wilfred Harris and Professor A. J. Hall.

The history given is that on April 9th the patient, a man of 42, ate tinned salmon and on the 10th had sausages. On the 11th he had slight diarrhœa, no vomiting or pain; on the 12th he complained of pins and needles in the face; and on the 13th there was paralysis of the face, choking, and great difficulty in swallowing. He could not speak, but appeared to understand. He was admitted on the 16th with a temperature of 102° F. He had well-marked left facial paralysis (Bell's). The condition of the eyes was peculiar; the pupils were slightly to the right of the middle line; he was unable to move the eyes from side to side at all, but he could move them upwards. Sometimes a fine nystagmus could be seen when trying to make him follow the movements of a finger. He could open the eyes but not close the left one. He was apparently unable to protrude his tongue, which, with his mouth, was in a peculiarly dirty condition. There was very great difficulty in getting him to swallow; he choked if more than a teaspoonful at a time was given. He was wildly delirious and so noisy at night that he had to be removed to an isolation ward. There was no paresis of the limbs, but the right plantar reflex was extensor and the left flexor. As soon as the papers in THE LANCET gave me the diagnosis of "botulism" he was put on 15 grains of urotropin three times a day, with a view to disinfecting his nervous system. Improvement in his general condition has been rapid since, whether *post* or *propter hoc* I do not know. He is now quite rational, and is taking food well without any difficulty in swallowing. The tongue is clean and when put out shows signs of weakness and wasting on the left side. The left facial paralysis remains, and the eye movements are still as limited as at first. He says that his right arm and leg feel numb, but there is no definite anæsthesia or paresis.

The stools, urine, and cerebro-spinal fluid have been examined by Dr. H. M. Galt, but the *Bacillus botulinus* cannot be found. The cerebro-spinal fluid was not under any increased pressure. I am indebted to my house physician, Mr. C. Duggan, for help in the investigation of the case.

I am, Sir, yours faithfully,

Brighton, April 30th, 1918. WALTER BROADBENT.

TWO UNUSUAL CASES OF CENTRAL NERVOUS SYSTEM TOXÆMIA, POSSIBLY DUE TO BOTULISM.

To the Editor of THE LANCET.

SIR,—I send you notes of two consecutive cases seen by me on April 19th and 20th which suggest that botulism has appeared in this district. Both presented to all of us who saw them unusual symptoms of central nervous system toxæmia which we were at a loss to account for until I read two days afterwards the notes in THE LANCET of similar cases by Captain Wilfred Harris and Major A. J. Hall. The first case was seen at Eccles with Dr. J. Orr and the second next morning at Whalley Range, Manchester, with Dr. C. J. Dabbs. The symptoms common to both were:—

Slowly developing (over a period of two or three weeks) but marked tiredness amounting eventually to inability to keep going any longer; position in bed, flat on the back like a log, with the lower jaw dropped and the mouth open, and dry brown tongue, suggestive of a typhoid state, continual and marked drowsiness (almost semi-coma in Case 1), but ability to wake up and talk quite intelligently when spoken to; temperature from 99·6° to 102·4° F.; no headache, vomiting, or photophobia; probably weakness, but by no means paralysis, of oculo-motor muscles, ptosis; sluggish pupils about one-third dilated only, no nystagmus; absent epigastric, abdominal, and cremasteric reflexes; knee-jerks and plantar reflexes present, but sluggish, no Babinski reflex; no anæsthesia; no definite bladder or rectal troubles; no diarrhœa; no loss of power of skeletal muscles; no albumin or sugar in the urine; no ear or throat troubles; no syphilis; no rash or eruption.

CASE 1 was a plumber, aged 54. He was very ill and semi-comatose. No delirium; Widal reaction, twice tried at intervals of 10 days, negative; transient left facial and right arm paralysis, and difficulty in protruding the tongue; no difficulty in swallowing; jaundice, bile in urine and clay-coloured stools for two days. Pulse on April 19th 120, soft. No arterial wall change, and no endocardial lesion. On the 24th inst. he was much the same. On the 28th I hear that he is still alive, with much the same symptoms and hypostatic pneumonia. The only food that I could get commented on by the wife was a pickled tongue (not tinned) which the family got tired of (it weighed 9 lb.) as it lasted them so long. It tasted wholesome. No sausages had been consumed for a good while before the illness and very little tinned food ever used. He did not work with white lead at all.

CASE 2.—A man, aged 40, in better circumstances, very well made and muscular. Not so sleepy or lethargic, but still suggestive of a "typhoid state." Widal reaction negative; some delirium; more easily roused and strong muscularly when tested. The nurse thought there was a slight difficulty in swallowing liquids, but none returned through the nose, only a slight unusual noise being made when we tried him with a drink. I thought that there was some weakness of the diaphragm; pulse 80, good volume; heart and lungs normal. Tinned lobster was a favourite article of food with him before the illness; a sausage was eaten just before he reported sick to the doctor, but he had been ill before.

After coming to the conclusion that our cases might be the result of the activity of bacteria in the colon and urinary tract I ordered kerol in 6-minim doses, given in 3-minim keratin-coated capsules, and hexamine in 15-grain doses three times a day and strychnine hypodermically 1/50th of a grain dose every four hours.

Case 2 has improved remarkably since the above treatment was adopted, and on the 27th he was awake for the first time, when I saw him. He wanted solid food, to be allowed to sit up and to read the paper, and was cheerful instead of depressed. He is apparently recovering nicely. The other man could not swallow the capsules, so we gave calomel in ¼-grain doses every four hours. I do not think he will recover.

I am, Sir, yours faithfully,

Manchester, April 28th, 1918. E. M. BROCKBANK.

WE are asked to mention that several cases of the obscure disease with cerebral symptoms resembling botulism now prevalent in London are under treatment at Guy's Hospital and will be demonstrated to any medical practitioner visiting the wards at 3, 3.30, or 4 P.M. on Monday next.—ED. L.

THE next meeting of the American Public Health Association will be held in Chicago, Oct. 14–17, 1918. The central theme of discussion will be: The Health of the Civil Population in War Time.

THE STANDARDISED BABY.

To the Editor of THE LANCET.

SIR,—Your annotation on p. 542 of THE LANCET of April 13th, which refers to the teaching of the Royal New Zealand Society for the Health of Women and Children (of which I am general president) as somewhat dogmatic in its tendencies with regard to the artificial feeding of babies, is based, I think, on a misconception. It was necessary in a small book on infant hygiene, for popular use, to confine oneself to a few simple, definite recipes and to be so far dogmatic. It would have been merely puzzling and confusing to the mothers to give more than the formulæ included and the indications for varying these.

Perhaps it is the recommendation to "humanise" cow's milk and to use sugar of milk in preference to cane sugar that suggests the idea of dogmatism, but I think we are all agreed that, other things being equal, milk sugar should be recommended for use in the feeding of normal babies if feasible. I cannot agree that there is scientific or clinical warranty for saying that cane sugar, or even malt sugar, should be regarded as equally safe and suitable in the feeding of normal infants, though malt sugar is, of course, preferable in certain pathological conditions. Whether the better term would be "humanising" or "modifying" cow's milk is an open question. All recipes given for modifying milk so as to make it approximate the composition of human milk are, of course, instructions for humanising. While preferring fresh milk to dried milk, a formula for the use of the latter is given in the appendix.

The main purpose of the society's book was to emphasise the importance of paying careful attention to all the main hygienic factors included under the following headings: Air, Water, Food, Clothing, Bathing, Exercise, Warmth, Regularity, Cleanliness, Mothering, Management, Rest, and Sleep. The foremost place is given to the transcendent importance of breast-feeding, and, failing this, to approaching nature as nearly as possible in preparing an artificial substitute. This is not standardising the baby, but doing our best to approximate the composition of the baby's food to the standard set for us by nature. I am not suggesting for a moment that the recipes given in "The Feeding and Care of Baby" afford the best and closest approximation feasible, but they were the best I could arrive at, and they have proved satisfactory in practice, without alteration, over a long period of time. I am, Sir, yours faithfully,

April 24th, 1918. F. TRUBY KING.

AURICULAR FLUTTER AND PAROXYSMAL TACHYCARDIA.

To the Editor of THE LANCET.

SIR,—The studies in cardiac pathology by Dr. Frederick W. Price, published in THE LANCET of April 6th and 13th, give clearly and in few words much information on two disorders of cardiac motion of great clinical interest. The essential nature of these cannot yet be said to be positively determined, however one may interpret the registrable phenomena.

I think I am correct in stating that the first clinical case of what is now usually termed auricular flutter was noted by myself in 1903, and polygraphic tracings from it were published in THE LANCET of Jan. 9th, 1909, in the course of an article on cardiac motion as revealed by the vivisection of disease. In that case there was a persistent 2 : 1 rhythm with an auricular rate of 240. A very clearly observable feature of the case, and one to which I called the attention at the time of my then colleague at the Great Northern Central Hospital, Dr. Clifford Beale, was that the accelerated auricular action was not only visible to the eye when registered by the polygraph, and indeed to the naked eye in the veins of the neck, but was also audible to the ear as distinct tic-tac sounds resembling a rapidly beating fœtal heart. These sounds were audible over the jugular bulb, on which account I described the condition as a "jugular embryocardia" in a communication to the Æsculapian Society. This auscultation sign of auricular tachycardia I have looked for in subsequent cases without finding it, and my friend, Dr. W. T. Ritchie, of Edinburgh, now on foreign service, also informed me that he failed to note it in auricular flutter. When, however, the sign does occur it is so unmistakable as to be diagnostic and should always be looked for. Its presence is probably due to a certain force of systole in an hypertrophied chamber, together with the existence of well-developed jugular valves above the bulb.

When Dr. Price states that "the commencement and termination of auricular flutter are sudden and abrupt" they certainly are so, if the condition termed flutter be regarded as synonymous with paroxysmal tachycardia, which is the subject of his second study; but I think it is questionable that this is so. True flutter, as I regard the condition, persists when the ventricular rate is reduced, and it is not a common consequence of the paroxysmal state. Such a case as that of which Dr. Price gives a polygraphic tracing on p. 491 (Fig. 1) I should regard as indistinguishable from paroxysmal tachycardia. He deals with a point of interest in his article on the latter subject (p. 521). I agree with him in his description of this mode of cardiac motion, but while I am aware that he gives the usual explanation of the phenomenon urged by most myogenists—namely, that it is the expression of ectopic stimulus in the auricle, the topos being the sinu-auricular node—and attributes the return to normal rhythm to cessation of the ectopic and reassertion of the topic stimulus, I confess that I prefer to regard the aberrant phenomenon as due to disturbance of the neural control of the sinu-auricular node and auricle, and the return to normal to a reassertion of such control.

I think I am correct in stating that I was the first to publish and illustrate an account of the complete innervation of the so-called "pacemaker," sinu-auricular, or Keith-Flack, node in the *Journal of Anatomy and Physiology* for July, 1912, and it is generally admitted that the excitatory system of the heart, once regarded as independent of neural control, is now known not to be so.

While in these details of scientific interpretation I may differ from Dr. Price, I regard his articles as valuable, and in their practical portion should only question the desirability of employing the very large doses of digitalis which he suggests as at times necessary in a condition which, when not fatal (as it unfortunately may be), is suddenly and automatically terminable. As in all exaggerated visceral actions, there is use in the employment in these cases of opium in various doses, although even with this drug (to which Dr. Price does not specially refer) it is difficult to be certain that the *post* and *propter remedium* are closely related, even when an apparently happy result has been secured. I am, Sir, yours faithfully,

ALEXANDER MORISON.

Upper Berkeley-street, W., April 15th, 1918.

Obituary.

JOHN MICHELL CLARKE, M.D. CANTAB., F.R.C.P. LOND., LL.D.,

PRO-VICE-CHANCELLOR OF THE UNIVERSITY OF BRISTOL.

AS we announced last week, the death of Professor Michell Clarke took place on April 21st at Headland House Hotel, Looe, Cornwall, in his fifty-ninth year.

John Michell Clarke was the son of the late Mr. W. Michell Clarke, a well-known surgeon at Bristol, and was educated at Clifton College, Caius College, Cambridge, and St. Thomas's Hospital Medical School. At Cambridge he graduated in honours in the Natural Science Tripos of 1882, in which year he became demonstrator of anatomy at the medical school. Three years later he graduated in medicine at Cambridge and served as house physician at St. Thomas's Hospital. Clarke's intellectual and practical gifts were already well appreciated by his seniors, and it was probably his intention to remain in London, but the death of his father led to his return to Clifton. He was appointed almost immediately lecturer on practical physiology in University College, Bristol, became later professor of pathology and of medicine, and held these offices till 1909, when he became professor of medicine in the University of Bristol. In 1887 he took the M.R.C.P. Lond. and was appointed assistant physician to the Bristol General Hospital; six years later he became full physician, taking the M.D. Camb. in 1892 and being elected F.R.C.P. Lond. in 1896.

At Bristol Clarke succeeded without dissentient voice to many academic and official posts. He had been at different times secretary and president of the Bath and Bristol Branch

of the British Medical Association, president of the Bristol Medico-Chirurgical Society, consulting physician to the Clifton Dispensary, physician to the Gloucestershire Visiting Justices, and medical referee to the Bristol Education Committee. He was also associate editor of the *Bristol Medico-Chirurgical Journal*, and a considerable author in the subject of neurology, to which he later devoted his careful analytical mind and well-balanced judgment and clinical sense. "Hysteria and Neurasthenia" appeared in 1905, and later articles on Family Periodic Paralysis and Recurrent Paralysis in Allbutt's "System of Medicine." All Clarke's written work showed his accuracy and orderly mind, and many articles appeared at different times in *Brain*, the *British Medical Journal*, and *The Lancet*. In 1910 he delivered the Long Fox lecture at Bristol, taking as his subject Cerebral and Spinal Syphilis; and in 1915 the Bradshaw lecture at the Royal College of Physicians of London on Nervous Affections of the Sixth and Seventh Decades.[1] Both lectures were marked by his abounding sense of the practical.

Clarke's personal qualities commanded the respect of all who came in contact with him and the affection of those who knew him intimately. He was a quiet, wise, unselfish man, who gave his best energies freely in the service of his fellows. His death is a real loss to medicine. By his wife, the daughter of Dr. A. J. Harrison, of Clifton, Michell Clarke had two sons and three daughters, and the death of the younger son at the front was a bitter loss to him.

Dr. Farquhar Buzzard writes:—

British neurology has suffered a severe blow in the death of Dr. John Michell Clarke before his work was finished and before he had had the time or opportunity to give us the results of his wide experience. He was not a voluminous writer, and his contributions to neurological meetings were only too rare, but he never wrote or spoke on any subject without arousing the keen interest of his readers or audience. His Bradshaw lecture on Nervous Affections of the Sixth and Seventh Decades, and his earlier work on spinal cord degeneration associated with anæmia, afford ample proof of his careful methods of research and of his remarkable clinical acumen. That his lifelong interest in neurology had not abated was shown by his recent publication of a paper on war neuroses, which contained many critical suggestions and displayed his intimate acquaintance with all the problems of psycho pathology. Michell Clarke was always sure of a warm welcome when he came to London, where he was well known and well appreciated, not only for his scientific work, but for his quiet unassuming manner, the charm of his society, and his great capacity for making and for keeping friends.

Captain Carey Coombs writes:—

To the profession at large the name of Dr. Michell Clarke is at least that of an eminent neurologist. Yet his scientific work, admirable though it is, represents only one small side of his personality. It is true that in its thoroughness and minute attentions to detail there lies a hint of the man's character, and of the intense energy which he applied to all his pursuits. But it is far from being the whole story. Those who were privileged to work for many years with him at the Bristol General Hospital came close enough to learn that beneath his quiet and undemonstrative exterior there burned a high enthusiasm for certain ideals. First among these, no doubt, were beliefs of which it would not become anyone to speak, so little did he himself incline to talk about them; of their existence and power, however, there can be no manner of doubt. Next to these, and in a sense tributary to them, came his ardent patriotism and his devotion to the cult and science of medicine. All his life he was a willing and enthusiastic instrument of these motives. To their blend, the cause of medical education in general, and in Bristol particularly, he devoted his great intellectual and physical force with untiring zeal. Not only so, but a certain calm and dispassionate unselfishness of outlook gave steadiness to his judgment, and made of him a reliable statesman. By his capacity for reconciling conflicting interests, for proving all things and holding fast to the genuine, he became a wise counsellor and leader of men. Much of his kindness was done by stealth, but those who lived nearest to him were privileged to know how faithful a friend he could be.

As he lived, so he died. Mobilised as a lieutenant-colonel at the outbreak of war with the 2nd Southern General Hospital, he soon took over command of the Southmead section of that unit. To this work he gave himself prodigally, and kept on long after it was only too apparent to his friends that he was seriously ill. Throughout his long and trying illness he hoped earnestly that he might return to the service of the soldiers for whom he had so deep an affection. His second son was killed in France in 1916, and this shook him grievously, but he set himself with Spartan fortitude to conceal his griefs beneath an increased devotion to the service of his country. What his example and advice have been to his colleagues they are beginning to realise more fully than ever before. It is as if they had lost an elder brother, yet not lost altogether, for there is a sense of the imperishable about so strong and single-hearted a spirit as his.

[1] THE LANCET, 1915, ii., 1016.

EDWARD THOMAS WILSON, B.A., M.B. OXFORD, F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO THE CHELTENHAM GENERAL HOSPITAL.

Dr. E. T. Wilson, who died on April 19th, aged 85, was a prominent citizen of Cheltenham, a thoroughly learned man of science, and an original authority on all public health questions since these questions began to bulk largely in the affairs of all communities. He had suffered severely from the death of his distinguished and gallant son, Dr. E. A. Wilson, chief of the scientific staff of Captain Scott's expedition to the South Pole in 1910, and in the last years of his life he remained under this sad influence.

Born in Liverpool in 1832, Edward Thomas Wilson was the son of Edward Wilson, of Hean Castle, Pembrokeshire, his brother being Sir Charles Wilson, R.E., who commanded the Gordon Relief Expedition in 1885. He was educated at Oxford, where he graduated B.A. in 1855, with a first class in natural science. He studied medicine at St. George's Hospital, and later in Paris, and in 1859, having by this time graduated in medicine, he accepted an appointment on the medical staff of a branch dispensary of the Cheltenham General Hospital. He became physician to the main institution in 1875, a position which he held for 31 years, at the close of which lengthy period of service he was appointed consulting physician. In 1870 he was elected a Fellow of the Royal College of Physicians of London, his scientific attainments being generally recognised, but deeply attached as he was to the town in which he lived, he refused all calls to other spheres of professional work for which his training eminently fitted him. One such post, placed absolutely at his disposal, may be mentioned—the chair of hygiene in University College, London. He was recognised in Gloucestershire as a prominent consultant, being also physician to the Winchcombe Cottage Hospital and Cotswold Convalescent Home, to Cheltenham College, and to the Cheltenham Ladies' College. But it is as a sanitarian that his claim to recollection is particular. In the cause of sanitary science he was unwearied in his labours. He took a prominent part in establishing the Delancey local Hospital for Infectious Diseases, he was an early supporter of the Society of Medical Officers of Health, he founded a district nursing association, and as a contributor to professional journals he wrote largely on infectious diseases and public health statistics. In 1884, a year in which London was visited by a severe small-pox epidemic, he contributed a series of articles to THE LANCET on the influence of small-pox hospitals and the possibility of widespread aerial convection which are worth reading to-day. Dr. Wilson did not establish his points, and much of what he wrote deals with questions which are still in doubt, but the clearness of his arguments and the courtesy of his contentiousness remain models. An enthusiastic naturalist, he was president of the Cheltenham Science Society, and in his eighty-first year he spent the summer in the Cotswold Hills hunting for neolithic flint instruments.

MOSES PROSSER JAMES, M.D. St. AND., M.R.C.P. LOND.

Dr. Prosser James, who died at his residence in North Kensington on April 6th, aged 82, had lived in retirement for the last 15 years. He was born in 1835 at Olney, Bucks, his father being the Baptist minister. He was apprenticed to a surgeon-apothecary in the old-fashioned way, and acquired a taste for botany and pharmacology which never left him, while his home training led him to devote much of his leisure to theology and the Hebrew language. He proceeded to the London Hospital and took the M.R.C.S Eng. in 1856, at the age of 21, and later the M.D St. And. At the age of 23 he started practice at Braintree, but after four years came to London and practised in the City. He was attracted by the study of laryngology, and in 1861 published a volume on Sore-throat and the Laryngoscope, of which instrument he was a very early advocate. He took his M.R.C.P. Lond. in 1867 and a little later became physician to the North London

Consumption Hospital and the Hospital for Diseases of the Throat and Ear, Golden-square, London. At the London Hospital, also, he was appointed lecturer on forensic medicine, becoming later lecturer on materia medica and therapeutics. In February, 1875, he had an attack of rheumatic fever and this was the commencement of his long life of patiently borne suffering, during which he devoted himself strenuously to many medical interests. He was the editor of the *Medical Press and Circular* at one time and at another of the *Balneological Journal*. He was a great supporter of the Hamilton Association for Trained Male Nurses; he was one of the founders of the British Laryngological and Rhinological Society, and was at one time also on the staffs of the City and Metropolitan Dispensary and the Children's Home Infirmary, Victoria Park, E. For upwards of 35 years he was crippled with arthritis and had to take his pleasures largely in his library, and he became a good linguist, keeping up a knowledge of the classics while becoming a fluent student of German, French, and Italian.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

To be temporary Surgeons: H. W. Breese, J. S. L. Roberts, G. O. Grant, C. E. E. Herington, A. S. Green, S. A. Rashbrook, E. V. Corry.

ROYAL NAVAL VOLUNTEER RESERVE.

To be temporary Dental Surgeon: L. Somerville-Woodiwis.

ARMY MEDICAL SERVICE.

Col. C. C. Reilly is retained on the Active List.

Col. W. Henderson Starr is placed on retired pay.

TERRITORIAL FORCE.

Capt. (temp. Major) J. Tait, High. Field Ambulance, to be Deputy Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Temp. Major L. S. T. Burrell relinquishes his commission on ceasing to be employed at the County of Middlesex War Hospital.

The undermentioned to be temporary Majors: J. G. Fitzgerald, H. Pritchard, M. B. Scott, and Temp. Capt. S. L. Hinde (without increased emoluments).

To be temporary Captains: A. R. O. Milton, J. Bain, Capt J. S. Pearson (from General List), H. A. Cutler, S. Potter, M. Ffoulkes, W. Allan, H. A. Treadgold, A. G. Henderson, E. Gordon, M.C., A. Burton, H. A. Fenton, H. N. M. Puckle.

A. B. Jones and W. C. W. Glenny, late temporary Captains, are granted the honorary rank of Captain.

Lieutenants (temp. Captains) to be Captains: D. Pottinger, M.C., A. L. Robb, D. Bell, M.C., E. Catford, A. F. I. Patterson, D.S.O., C. J. D. May, D. G. Cheyne, P. A. Opie, F. P. Rankin, W. C. Hartgill, T. F. Kennedy.

Temporary Lieutenants to be Captains: R. D. Passey, M.C., I. C. Edwards.

To be temporary Lieutenants: F. M. H. Sanderson, C. I. McLaren, J. D. McIlvie, A. A. Hall, J. M. Smith, G. Maclean, J. F. Paul, E. Gofton, W. S. Perrin, H. Farncombe J. F. Jennings, L. D. Stephen, S. E. Murray, J. C. Curtis, T. G. Rothwell, F. J. Fox, A. Li. Vaughan, H. Menage, R. Ll. Hughes, C. S. Macaskie, P. W. Ashmore, R. H. Martin, S. F. Boyle, H. J. Knox, S. Broderick, W. H. Ross, F. J. Gordon, A. E. Clark, J. J. Hughes, R. Harrington, H. N. Crossley, H. D. Pollard, P. B. Whittington, C. T. Costello, C. W. Cogblan, J. Menzies, G. de P. D'Amico, A. N. Symons, S. G. Trail, E. J. Budd-Budd, A. L. White, W. M. Johnston, S. P. Hyam, T. A. Matthews, E. Reavley, E. C. Tatam.

Officers relinquishing their commissions: Temp. Capt. (acting Major) G. H. Clark. Temp. Capts. G. A. Birnie, M.C., W. D. Bathgate, S. S. Depree, E. E. Willis, W. R. White-Cooper, F. O. Stohr, H. H. Fairfax, Temp. Lieuts. O. C. Johnson and G. E. P. Davis (on account of ill-health contracted on active service, and are granted the honorary rank of Lieutenant), J. Acomb, R. J. Dick, A. W. Laing, H. C. W. Wood, W. B. Douglas-Drummond.

Canadian Army Medical Corps.

Temp. Lieut.-Colonel L. E. W. Irving, D.S.O., to be acting Colonel while specially employed.

Temp. Capts. (acting Majors) to be temp. Majors: R. J. Gardiner, M.C., G. W. Hall, H. W. McGill, M.C.

Temp. Major E. R. Selby to be acting Lieut.-Colonel, and to command a Field Ambulance.

Temp. Major J. H. Wood to be acting Lieutenant-Colonel.

Temp. Capts. to be acting Majors: F. C. Clarke, W. G. Cosbie, M.C.

Temp. Capt. W. S. Macdonell to be acting Major while specially employed.

Temp. Capt. (acting Major) W. J. Enright relinquishes the acting rank of Major.

A. B. Gordon to be temporary Captain.

SPECIAL RESERVE OF OFFICERS.

Lieutenants to be Captains: A. Black, T. G. Roche, N. S. Tirard, T. D. Watt, J. S. B. Forbes, G. R. McRobert, T. H. Rhys, J. Burke, V. T. B. Yule, A. G. Lumsden, R. Lloyd-Jones, W. Christopher.

To be Lieutenants: W. N. Goldschmidt, E. R. Batho, A. E. Clark-Kennedy, W. S. Gross, R. M. Humphreys, J. W. Jones, P. M. Neighbour, and M. C. Paterson; G. V. W. Anderson, P. F. Bishop, C. B. Cohen, W. Feldman, R. B. Green, W. M. Heald, A. V. Pegge, B. B. Sharp, A. G. Shurlock, and G. K. Stone from University of London Contingent, O.T.C.; J. Charnley, J. C. T. Fiddes, and R. S. Paterson from Manchester University Contingent, O.T.C.; F. W. M. Lamb from Birmingham University Contingent, O.T.C.; H. S. Carter from Leeds University Contingent, O.T.C.

TERRITORIAL FORCE.

Captains to be acting Majors whilst specially employed: H. B. Pope, J. H. Blackburn, M.C., W. T. D. Mart, H. Drummond, F. Darlow, E. A. C. Fazan, M.C., G. L. K. Pringle, H. Drummond, G. W. Greene, C. H. J. Fagan, W. L. Robertson, M.C., G. E. G. Mackay, M.C.

Capt. (acting Major) E. A. C. Fazan, M.C., relinquishes his acting rank on alteration in posting.

Capts. J. B. F. Wilson and F. Alcock are restored to the establishment.

Capts. P. Howie and L. C. V. Hardwicke to be Majors.

Capt. G. Thomson relinquishes his commission on account of ill-health, and is granted the honorary rank of Captain.

Capts. F. P. Sturm and J. E. S. Smith relinquish their commissions on account of ill-health contracted on active service, and are granted the honorary rank of Captain.

Capt. (temp. Major) T. S. Allan to be acting Lieutenant-Colonel whilst commanding a General Hospital.

Capt. (temp. Major) J. Tait is restored to the establishment.

Capt. P. N. B. Odgers is seconded.

Capt. J. H. H. Pirie to be Major, and to remain seconded.

Capt. H. Smith (late R.A.M.C.) to be Medical Officer and temporary Captain, 1st Battalion Worcestershire Regiment.

C. V. Knight (late Lieutenant, R.A.M.C.) to be Medical Officer and temporary Lieutenant, Gloucestershire Motor Volunteer Corps.

Medical News.

THE course of public lectures on "Some Biological Problems of To-day" will be continued in the second term at University College on Mondays at 5 P.M. instead of at 4 P.M., as in the first term. Major Martin Flack, R.A.M.C., member of the research staff of the National Medical Research Committee, will lecture on "The Physiological Aspects of Flying," next Monday, May 6th; and Dr. H. M. Vernon, of the University of Oxford, will lecture on "Industrial Efficiency and Fatigue" on May 13th. Further particulars of the course may be obtained by sending a stamped addressed envelope to the secretary, University College, London (Gower-street, W.C.1).

PUBLIC HEALTH PROBLEM LECTURES.—The useful series of lectures and discussions on Public Health Problems under War and After-War Conditions is being continued during the coming summer term at the Lecture Hall of the Royal Institute of Public Health, 37, Russell-square, London, W.C.1, on Wednesday afternoons at 4 o'clock. At the first lecture, on May 1st, Sir James Cantlie dealt with ambulance work in relation to Municipal and National Service. Subjects and lecturers in succeeding weeks are as follow: Hours of Work and After-War Labour Conditions, Lord Leverhulme; Accessory Components of Food, Professor Bayliss; the Dying Out of Native Races, Captain W. H. R. Rivers, R.A.M.C.; Conservation of Milk, Professor S. Delépine; Health Aspects of Aeronautics, Temporary Major M. W. Flack, R.A.M.C.; Some Effects of War as Shown in Vital Statistics, Sir Bernard Mallet; Influence of a Ministry of Health on Local Organisation and Administration, Professor E. W. Hope; the Housing Problem, Dr. A. M. Williamson; How Open Air Acts on Health, Professor Leonard E. Hill.

METROPOLITAN ASYLUMS BOARD.—A course of lectures and demonstrations in hospital administration for the diploma in Public Health, lasting three months, will be given at the South-Eastern Hospital, Avonley-road, New Cross, London, S.E., by Dr. F. M. Turner, on Tuesdays and Fridays at 3 P.M., commencing August 9th. The fee for the course is £3 3s. Application to the Clerk of the Board, Embankment, London, E.C. 4.

LITERARY INTELLIGENCE.—A second edition of Professor A. Hopewell-Smith's "Histology and Pathology of the Teeth and Associated Parts" will shortly be published by Messrs. P. Blakiston's Sons and Co., of Philadelphia, in two volumes, with the title of "The Normal and Pathological Histology of the Mouth."

UNIVERSITY OF GLASGOW.—On April 23rd the degree of Doctor of Medicine (with commendation) was conferred on Margaret Eason Robertson.

INVALID CHILDREN'S AID ASSOCIATION.—Lord Leverhulme presided at the annual meeting of the association held at 4, Marble Arch, London, W., on April 30th. In moving the adoption of the report the chairman spoke of the enormous increase of the work during the war, a notable addition being the treatment of raid-shocked children in coöperation with the National Relief Fund. Colonel Charters Symonds, R.A.M.C., spoke of the value of close coöperation with the hospitals in after-care treatment and the useful work done in the association's special homes, of which four new ones were opened in 1917.

THE RÖNTGEN SOCIETY.—The Council of this society has created a benevolent fund. In view of the calls likely to be made upon this fund in the near future contributions from members are invited; they should be addressed to the honorary treasurer, and marked "The Benevolent Fund of the Röntgen Society."

THE ORDER OF ST. JOHN.—At the first meeting of the Chapter of the Priory for Wales, held at St. John's Gate, Clerkenwell, on April 30th, Lieutenant-Colonel Thomas Wallace, R.A.M.C.(T.F.) was appointed treasurer.

AT the last Edinburgh University Court a letter was read from Professor Sir Thomas Fraser intimating his intention to resign the professorship of materia medica at the end of the present financial year.

Dr. John Finlay Macdonald, of Chelmsford, has been appointed Deputy Coroner for the Eastern Division of Essex, in the room of the late Mr. Philip Preeston, who was recently killed in action in France.

Mr. Charles W. Dean, F.R.C.S., who was president of the Royal Lancaster Infirmary in 1914, has been appointed deputy coroner for Lancashire (Lancaster Division) during the absence on active service of Major H. D. Wilson, D.S.O.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 24TH.

Venereal Infection of Soldiers.

Mr. LEES-SMITH asked the Under Secretary for War whether, under the new Regulation 40d of the Defence of the Realm Acts, in cases where a woman was accused of soliciting or having intercourse with a member of His Majesty's Forces while she was suffering from venereal disease, the man alleged to have been solicited or infected would be called upon to give evidence before she was convicted.—Mr. MACPHERSON answered: I am unable to anticipate what course the magistrate would follow in such a case, but, as it appears to me that the infected soldier would be one of the most material witnesses, I doubt whether any magistrate would convict without his evidence being available and the opportunity given of careful cross-examination. A defendant in a case of this kind will have the same right as in other cases to secure the attendance of any person whose evidence is likely to be material in her behalf. If such a witness will not attend voluntarily he can be compelled to appear and give evidence under Section 7 of the Summary Jurisdiction Act, 1848.

Lord HENRY CAVENDISH-BENTINCK asked the Home Secretary how many women and girls had been brought up under Regulation 40d of the Defence of the Realm Act; how they had been dealt with; and whether, in the case of those sent to prison, any attempt was being made to keep the young girls apart from the other prisoners.—Sir G. CAVE replied: Cases occurring under the Defence of the Realm Regulations are not in the ordinary course reported to the Home Office, and I cannot say how many persons have been charged under this regulation, but I believe they must be very few. Care is taken at all prisons to prevent the association of prisoners under 21 years of age, and especially those of respectable antecedents, with offenders of a worse class.

Dentists in the Army.

Replying to Mr. PENNEFATHER, Mr. MACPHERSON (Under Secretary for War) said: The number of dentists in the Army has recently been considerably increased, and is now being still further increased in order to provide adequate dental facilities. Artificial dentures are supplied to troops in categories A and B 1 and to those in lower categories when required to fit them for service overseas.

British Prisoners of War in Turkey.

Answering Mr. HUME-WILLIAMS, who asked whether Turkey had now ratified the Berne agreement for an exchange of prisoners, Mr. J. F. HOPE (representing the War Prisoners Department) said: The agreement signed at Berne on Dec. 28th has now been ratified by the Turkish Government. Its main feature is to provide by a relatively easy medical qualification for the repatriation of all invalid combatant prisoners irrespective of rank. It also provides for the repatriation of all members of the medical staff who are not required for the care of the prisoners who remain. One thousand British and Indian invalids are at once to be repatriated without waiting for medical formalities. The agreement also contains articles providing for the inspection of prison camps by representatives of neutral Powers, for the better delivery of supplies and correspondence, for exercise, for the mitigation of punishments, and other matters. The text of the agreement will be published immediately.

General MCCALMONT: Who will select the thousand, and are there any means by which urgent cases can be brought to the notice of the authorities in which officers' lives might be saved?—Mr. HOPE: I am afraid it is not possible for anyone in our service to make the selection, but as the arrangement will be mutual I fully hope that the Turkish authorities will do their best to select the worst cases first, and will be aided in their judgment by our own medical officers who are prisoners.

Medical Examination of Recruits.

Mr. JOWETT asked the Under Secretary for War whether he would satisfy himself by means of special inspection by responsible persons on his behalf that proper and adequate arrangements had been made at all depôts where newly enlisted men and volunteers were medically examined to prevent the necessity of men in large batches and of different ages waiting together, stripped of their clothing, for examination in the presence of each other.—Mr. MACPHERSON replied: The recruit is medically examined and graded before being handed over to the Army by the Ministry of National Service. The subsequent examination at the reception depôt prior to posting is a very cursory one, merely for the purpose of detecting whether a man is suffering from an infectious disease. This inspection does not normally involve stripping.

Training for Limbless Soldiers.

Sir MONTAGUE BARLOW asked the Parliamentary Secretary to the Ministry of Pensions whether, in view of the necessary length of time taken in fitting a false limb, arrangements could be come to between the Pensions Ministry and the Army authorities whereby local War Pensions Committees might give training to limbless soldiers, whose discharge from the Army was delayed, until they could be fitted with such limb.—Sir A. GRIFFITH-BOSCAWEN replied: The necessary arrangements have been made. Local committees are empowered to begin training the men as soon as practicable, and to pay the usual fees in connexion with the instruction. Where the course is broken by the man's entrance into the fitting hospital it will be continued and completed on his discharge.

Lord HENRY CAVENDISH-BENTINCK: Is it not a fact that there are between two and three thousand men waiting for admission to Roehampton?—Sir A. GRIFFITH-BOSCAWEN: That hardly arises out of the question, but I may say that in the case of every one of those men arrangements have been made for giving them training if it is desired.

MONDAY, APRIL 29TH.

Promotions in the Army Medical Service.

Sir WILLIAM COLLINS asked the Under-Secretary for War how many promotions had recently been made in the Royal Army Medical Corps to the rank of Major-General; how many of these had been associated with the administrative and how many with the scientific side of the work of the Royal Army Medical Corps; what was the regular method of procedure adopted in making such promotions; and whether it was followed in the case of the recent appointments.—Mr. MACPHERSON replied: Seventeen officers in the Army Medical Service have been promoted to the rank of Major-General during the last five months; of these, five were men who held world-wide reputations for scientific and professional work, and 12 were promoted for both professional and administrative work. As regards the last part of the question, I would refer my honourable friend to my reply on Feb. 18th last. (THE LANCET, Feb. 23rd, p. 318.)

British Prisoners of War in Turkey.

In answering Mr. HUME-WILLIAMS further on the subject of repatriation of prisoners of war in Turkey under the terms of the Berne agreement, Mr. J. F. HOPE stated that after the repatriation of the first thousand the selection would be made by medical commissions composed of two Turkish doctors and one British prisoner doctor. The standard of disability for repatriation from Turkey under the agreement was the same as that in force with Germany for the purpose of transfer from that country for internment in Switzerland. It would apply to all prisoners who now fall, or might in future come to fall, within its terms.

An Outbreak of Diphtheria in Wilts.

Mr. G. TERRELL asked the President of the Local Government Board whether there had been an outbreak of diphtheria at Lacock, in the county of Wilts; and whether the parish school had been closed and any steps taken to disinfect it.—Mr. HAYES FISHER replied: There has been some recent prevalence of diphtheria in the rural district of Chippenham, which comprises Lacock and 25 other parishes, a total of 30 cases having been notified for the whole district since Jan. 1st. Inquiries recently showed that active steps had been, and were being, taken to limit the prevalence of the disease. I have no information as to whether the closure

of the parish school at Lacock has been considered necessary, but I am in communication with the local authority on the matter and will let the honourable Member know.

The Treatment of Tuberculosis.

Answering Mr. BOOTH, Sir E. CORNWALL (representing the National Insurance Commissioners) stated that the North Riding Insurance Committee had not actually at present a waiting list of tuberculous insured persons requiring treatment in residential institutions. At the same time it was clearly desirable that a comprehensive scheme for the provision of institutional treatment of tuberculosis should be undertaken by the North Riding County Council, as had been done by the great majority of other councils. Representations were being accordingly made to the Local Government Board.

Mr. BOOTH asked whether the honourable gentleman had received a resolution from the Middlesex Insurance Committee asking him to sanction arrangements proposed by the county council to take over liability for the treatment of tuberculosis cases in Poor-law institutions; whether he was aware that this proposal was repugnant to insured persons; and what answer he intended to make to the resolution.—Sir E. CORNWALL answered: Suggestions have been made to the Insurance Committee and, I understand, by the county council as the public health authority, with regard to the possibility of securing the further accommodation which is so greatly needed for tuberculous persons in the county, insured and uninsured. The matter is at the moment under careful consideration, and I am not sufficiently aware of the details of the proposals to be certain whether, by making certain changes in them, a satisfactory solution might not be found possible that would free from any undesirable characteristics such as those assumed in the question as would, of course, be necessary before sanction could be given.

TUESDAY, APRIL 30TH.

Venereal Infection of Soldiers.

Answering Mr. LEES-SMITH, who repeated his question regarding the prosecution under the new Regulation 40d of the Defence of the Realm Act at the city police-court, Manchester, Sir G. CAVE (Home Secretary) said: I have obtained a police report and I find that the sentence was two months. The girl herself stated that she was suffering from venereal disease and this was confirmed by the prison doctor. The attendance of the soldiers whom she solicited was not therefore required.

WEDNESDAY, MAY 1ST.

Surgeon-General MacNeece.

Sir W. WATSON CHEYNE asked the Under Secretary for War what had been the result, if any, of the private inquiry by the Army Council into the charges made against Surgeon-General J. G. MacNeece in connexion with the campaign in Mesopotamia.—Mr. MACPHERSON wrote in reply: The Army Council have received and considered a statement by Surgeon-General MacNeece in regard to the findings of the Mesopotamia Commission in his case, and they have formed the opinion that no blame can be attached to him in regard to the manner in which he carried out his duties in connexion with the medical services during the campaign.

Contracts of Temporary Medical Officers.

Mr. WATT asked the Under Secretary for War whether an official memorandum had recently been sent to temporary medical officers in France whose yearly contracts were about to expire, stating that they would require to renew their agreements unless their release was asked for by some public body or by a medical practitioner requiring their services at home; and, if so, having regard to the terms of the Military Service Act, would he say why this action had been taken.—Mr. MACPHERSON answered: I am not aware of any Memorandum of the nature suggested by the honourable gentleman. A letter from the Ministry of National Service has been sent to all such officers requesting them to continue their services in the Royal Army Medical Corps on the expiration of their contracts. The letter also states that the privilege which has hitherto been accorded of laying before the central professional committees any difficulties which individuals may have in continuing their services will not be affected.

Appointments.

HURST, Major A. F., R.A.M.C., has been appointed Officer in Charge of Seale-Hayne Military Hospital for soldiers suffering from shell-shock.

STRATON, A. W. K., M.R.C.S., L.R.C.P. Lond., Certifying Surgeon under the Factory and Workshop Acts for the Wilton District of the county of Wilts.

Vacancies.

For further information refer to the advertisement columns.

Birmingham General Dispensary.—Res. M.O. £340.
Birmingham, Selly Oak Infirmary.—Assist. Res. M.O. £7 7*s.* per week.
Bradford, Odsal Sanatorium.—Temp. M.O. £350.
Bridgwater Hospital.—H.S. £140.
Brighton, Royal Sussex County Hospital.—Sen. H.S. £140.
Bristol Royal Infirmary.—H.P. and H.S. £120.
Carlisle, Cumberland Infirmary.—Female H.S. and H.P.
Chesterfield and North Derbyshire Royal Hospital.—Sen. H.S. £300.
Chichester, Graylingwell War Hospital.—Res. M.O. £1 per diem.
Dudley, Guest Hospital.—Sen. Res. M.O. £150. Also Asst. H.S. £120.
Evelina Hospital for Children, Southwark, S.E.—H.P. £160.
Great Northern Central Hospital, Holloway.—H.S. £130.
Huddersfield Royal Infirmary.—Res. H.S. £250.
Kensington Board of Guardians.—First and Second Asst. Res. M.O. £350 and £325.
Kensington Dispensary and Children's Hospital.—Res. M.O.
Leamington, Warneford General Hospital.—Second Res. M.O. £200.
Leeds General Infirmary.—Res. Aural Officer. £100.
Leeds National Pensions Ministry at Allerton Hall, Neurasthenic Hospital for Pensioners.—M.O. £400.
Lincoln General Dispensary.—Res. M.O. £350.
Liverpool County Asylum, Rainhill.—Temp. Asst. M.O. 7 gs. per week.
Manchester City.—Female M.O. £400.
Manchester Corporation.—Temp. Asst. Tuber. Officer. £450.
Metropolitan Hospital, Kingsland-road, E.—H.P. £150.
Newark Hospital.—Female H.S.
Norwich, Norfolk and Norwich Hospital.—H.P. £400.
Nottingham General Hospital.—Female Casualty H.S. £250.
Prince of Wales's General Hospital, Tottenham, N.—Jun. H.S. £200.
Queen Mary's Hospital for the East End.—H.S.
Roll of Honour Hospital for Children, Harrow-road, W.—Female Anæsthetist. £20; L.C.C. fees £100.
Rotherham Hospital.—Junior H.S. £150.
St. Helens Corporation Sanatorium.—Temp. Res. M.O. £300.
Sheffield Education Committee.—Asst. School M.O. £400.
Sheffield Royal Infirmary.—H.S. £120.
Stockport Union, Stepping Hill Military Hospital.—Two Res. Asst. M.O. £300.
Tottenham Education Committee.—Temp. Asst. M.O. £450.
West Ham Union Sick Home, Stratford, E.—Temp. Res. Asst. M.O. £6 6*s.* per week.
Westminster Hospital, S.W.—Asst. Surg.
West Riding of Yorkshire—Maternity and Child Welfare.—Female Medical Practitioner. £400.
Wolverhampton and Staffordshire General Hospital.—H.S. £220.
Woolwich Metropolitan Borough.—Female Asst. M.O.H. £500.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Tunstall, Stafford.

Births, Marriages, and Deaths.

BIRTHS.

BURT.—On April 12th, at Alexandra-road, Gloucester, the wife of L. P. Burt, Captain, R.A.M.C., of a son.

DAVIES.—On April 9th, at Aylestone-road, Leicester, the wife of John Horron Davies, M.D., J.P., Major, R.A.M.C.T., of a son.

JEFFREYS.—On April 22nd, at Acton, Brookvale-road, Southampton, the wife of Captain W. M. Jeffreys, R.A.M.C., of a son.

LOCKHART-MUMMERY.—On April 28th, the wife of J. P. Lockhart-Mummery, F.R.C.S., of a son.

TAPPER.—On April 16th, at Beaumont-street, W., the wife of Captain K. E. Tapper, N.Z.M.C., of a daughter.

MARRIAGES.

BARTON—PRESSLEY-SMITH.—On April 18th, at St. John's Church, Oban, Captain E. B. Barton, R.A.M.C., to Veronica Collette, third daughter of the Very Rev. Charles Pressley-Smith, D.D., Dean of Argyll and the Isles.

HOLMES—AUBER.—On April 23rd, at St. Thomas's Church, Brampton, Chesterfield, Captain Geoffrey Holmes, M.B., B.C. Camb. (late Captain, R.A.M.C., T.F.), to Kathleen Mary St. Lo Auber, only daughter of the Rev. R. C. St. Lo Auber and the late Mrs. Auber, of Parkstone, Dorset.

WHIPHAM—TREVOR.—On April 4th, at St. Augustine's, Queen's-gate, Thomas R. C. Whipham, M.D., to Urania Frances Jane, daughter of the late Major Richard Meade, and granddaughter of Lieutenant-General the Hon. John Meade.

WOODROFFE—SHAW.—On April 9th, at St. Mary Abbot's, Kensington, Captain J. C. L. Woodroffe, R.A.M.C. (S.R.), son of Dr. and Mrs. Woodroffe, Windsor, Fermoy, Co. Cork, to Sister Edith Nairn Shaw, Q.A.I.M.N.S.R., younger daughter of Mr. and Mrs. D. N. Shaw.

DEATHS.

FINCHAM.—On April 26th, at "Ivydene," St. John's-road, Putney-hill, S.W., after a few days' illness, William Sydney Fincham, M.R.C.S. Eng., L.R.C.P. Lond., in his 53rd year.

MACBETH.—On April 22nd, at "Sunnyside," 70, Raglan-road, Smethwick, Birmingham (suddenly), Alex. Stewart Macbeth, M.B., Ch.B., son of Alex. Macbeth, solicitor, Pitlochry, Perthshire, dearly beloved husband of Gertrude M. Macbeth.

MACNAUGHTON-JONES.—On April 26th, at The Rest, Ravenscourt-park, High Barnet, Henry Macnaughton-Jones, M.D., F.R.C.S.I. & E., aged 73.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, May 9th.—Papers:—Major P. A. MacMahon and Mr. H. B. C. Darling: Contribution to the Theory of Attraction when the Force varies as any Power of the Distance.—Sir George Greenhill: Electromagnetic Integrals.—Dr. T. R. Merton and Mr. J. W. Nicholson: On Intensity Relations in the Spectrum of Helium.—Dr. S. Chapman: The Outline of a Theory of Magnetic Storms (communicated by Sir F. Dyson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MEETINGS OF SECTIONS.

Monday, May 6th.

ODONTOLOGY (Hon. Secretaries—F. N. Doubleday, J. Howard Mummery): at 7.30 P.M.
Annual Meeting.—Election of Officers and Council for 1918–1919.
Paper:
Dr. Nathan Mutch: Infections of the Mouth in their Relationship to those of the Gastro-Intestinal Tract.

Tuesday, May 7th.

ANÆSTHETICS (Hon. Secretaries—F. E. Shipway, Ashley S. Daly): at 8 P.M.
Annual Meeting.—Election of Officers and Council for 1918–1919.
Paper (at 8.15 P.M.):
Dr. G. A. Buckmaster: Some Considerations on the Physiology of Anæsthesia by Chloroform.
Demonstrations:
Dr. O. Millauro: New Foot-key for Cylinders.
Captain Charles T. W. Hirsch: Apparatus for administering Nitrous Oxide, Oxygen, and Ether.
Captain H. E. G. Boyle: Boyle's Nitrous Oxide-oxygen-ether Outfit.

Wednesday, May 8th.

SURGERY: SUB-SECTION OF PROCTOLOGY (Hon. Secretaries—P. Lockhart-Mummery, W. Sampson Handley): at 5.30 P.M.
Annual Meeting.—Election of Officers and Council for 1918–1919.

Friday, May 10th.

CLINICAL (Hon. Secretaries—David Forsyth, T. P. Legg): at 4.30 P.M.
Annual Meeting.—Election of Officers and Council for 1918–1919.
Cases:
Mr. P. P. Cole: Cases to illustrate the Results of Bone-grafting in Ununited Fractures of the Mandible.
Communication:
The Pedicled Bone-graft in Ununited Fracture of the Mandible.
Members of the Section are particularly requested to communicate at once with Dr. Forsyth, 74, Wimpole-street, W. 1, if they have any cases to communicate.
N.B.—Members will please note the change of hour—4.30 P.M.

RÖNTGEN SOCIETY, at the Royal Society of Arts, 18, John-street, Strand, W.C.
TUESDAY, May 7th.—7.45 P.M., General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
WEDNESDAY, May 8th.—5 P.M., Hunterian Lecture:—Col. W. T. Lister: The Pathological Aspect of Certain War Injuries of the Eye.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
Clinics each week-day at 2 P.M., Wednesday, Friday, and Saturday also at 10 A.M.
(Details of the Post-Graduate Course were given in the issue of April 27th.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Out-patients each day at 2.30 P.M.
(Details of the Post-Graduate Course were given in the issue of April 6th.)

CHARING CROSS HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON). Lecture Theatre, Charing Cross Hospital, W.C.
TUESDAY, May 7th.—3 P.M., Dr. J. M. H. Macleod: Demonstrations on Skin Diseases, especially those met with in Military Wards. (Demonstration I.)

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
TUESDAY, May 7th.—3 P.M., Lecture:—Prof. A. Keith: Craniologists. (Lecture III.)
FRIDAY.—5.30 P.M., Prof. F. G. Hopkins: Human Nutrition.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
Course of Lectures and Discussions on Public Health Problems under War and After-war Conditions:—
WEDNESDAY, May 8th.—4 P.M., Lecture II.:—Right Hon. Lord Leverhulme: Hours of Work and After War Labour Conditions in Relation to Health.

ROYAL SANITARY INSTITUTE, at the Assembly Rooms, Town Hall, Hereford.
FRIDAY, May 10th.—5 P.M., Discussion on Tuberculosis, its Treatment and Present Position (opened by Dr. D. Gold).

The following journals, magazines, &c., have been received:—Surgery, Gynecology, and Obstetrics, American Journal of Mental Sciences, Journal of the Missouri State Medical Association, Journal of Nervous and Mental Disease, Mercy and Truth, Bulletin of the Johns Hopkins Hospital, West London Medical Journal, Journal of Comparative Pathology and Therapeutics, Parasitology, British Journal of Dermatology and Syphilis, Brain.

EDITORIAL NOTICES.

In consequence of the pressure on our space and the shortage of paper, the Editor may be compelled to abbreviate communications, as an alternative to their rejection, when time does not allow them to be reconsidered by their authors.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

We cannot prescribe or recommend practitioners.

We cannot undertake to return MSS. not used.

Offices: **423, STRAND, LONDON, W.C. 2.**

Communications, Letters, &c., to the Editor have been received from—

A.—Major R. G. Archibald, D.S.O., R.A.M.C.; Anti-Socialist Union of Great Britain, Lond.; Messrs. Claudius Ash, Sons, and Co., Lond.; Mr. J. F. Ashby, Lond.; American Public Health Association, Boston; Lieut.-Col. J. G. Adami, A.D.M.S.

B.—Mr. J. Binns, Grimsby; Mr. H. Birmingham, Goulburn; Dr. C. H. Browning, Lond.; Dr. E. M. Brockbank, Manchester; British Medical Association, Brighton Division, Hon. Sec. of; Dr. F. E. Batten, Lond.; Dr. E. F. Buzzard, Lond.; British Museum (Natural History), Lond., Asst. Sec. of; Dr. L. S. Burrell, Wimbledon; Mrs. M. Bulkeley, Darlington; Major W. Broadbent, R.A.M.C.(T.); Mr. W. Bentley, Lancaster; Dr. N. Bardswell, Lond.

C.—Charity Organisation Society, Worcester, Hon. Sec. of; Capt. E. Copians, R.A.M.C.; Dr. J. B. Christopherson, Khartoum; Dr. A. J. Chalmers, Khartoum; Mr. A. Clozenberg, Lond.; Dr. F. G. Crookshank, Lond.; Capt. C. Coombs, R.A.M.C.; Council for the Promotion of the Higher Training of Midwives, Lond.; Mr. J. Cabburn, Lond.; Sir John Collie, Lond.; Mr. G. W. Clyne, Aberdeen.

D.—Capt. S. C. Dyke, R.A.M.C.; Discharged Soldiers' Aid Committee, Lond., Hon. Sec. of; Dr. V. Dickinson, Lond.; The Decimal Association, Lond.; Mr. J. W. Dowden, Edinburgh.

E.—Dr. H. Elliot-Blake, Beer; Mr. J. Enright, Listowel; Surg.-Gen. G. J. H. Evatt, C.B.; Mr. A. Esdaile, Lond.; Epsom College, Lond., Sec. of.

F.—Mr. C. H. Fagge, Lond.; Major A. W. Falconer, R.A.M.C.; Film Booking Offices, Lond.; Factories, Chief Inspector of, Lond.

G.—Dr. M. H. Gordon, Lond.; General Medical Council, Lond., Registrar of.

H.—Prof. A. J. Hall, Sheffield; Dr. F. de H. Hall, Lond.; Dr. J. Harrison, Braintree; Dr. W. J. Horne, Lond.; Prof. A. Hopewell-Smith, Philadelphia; Mr. C. Higgens, Lond.; Mr. J. T. Henderson, Pietermaritzburg; Mr. J. J. Hemming, Margate.

I.—Insurance Committee for the County of London.

J.—Mr. H. Jefferson, St. Andrews; Dr. Ada Jackson, Hull; Dr. H. C. Jennings, Lond.; Mr. Z. Johnston, Indianapolis.

K.—Mr. L. Kirby, Nottingham; Dr. L. J. Kidd, Lond.; Prof. H. R. Kenwood, C.M.G., Lond.

L.—Messrs. Lea and Febiger, Philadelphia; Dr. P. W. Latham, Lond.; Dr. R. B. Low, Lond.; London and Counties Medical Protection Society, General Sec. of; Mr. J. B. Lamb, Lond.; Dr. T. D. Lister, Lond.

M.—Dr. N. Mahfouz, Cairo; Surg.-Gen. Sir G. H. Makins, K.C.M.G., C.B.; Medical Sickness and Accident Society, Lond.; Mrs. G. E. McClatchey, Buxton; Capt. C. E. Murphy, R.A.M.C.; Mr. T. J. Morand, Lond.; Mr. J. MacMunn, Lond.; Dr. A. Morison, Lond.; Dr. J. A. Murray, Lond.

N.—Capt. M. Nicoll, R.A.M.C.; National Clean Milk Society, Lond.; National Baby Week Council, Lond.; Mr. C. Noon.

O.—Capt. S. A. Owen, R.A.M.C.

P.—*The Practitioner*, Lond., Editor of; Rev. Dr. Pentreath.

R.—Royal Academy of Arts, Lond.; Royal Sanitary Institute, Lond.; Dr. A. Routh, Lond.; Royal Institution of Great Britain, Lond.; Dr. C. Rolleston, Peterborough; Mr. W. S. Rose, Lond.; Royal Medical Benevolent Fund, Lond., Sec. of; Royal Institute of Public Health, Lond., Acting Sec. of; Royal Society of Arts, Lond.; Royal Society, Lond.; Röntgen Society, Lond.

S.—Scientific Press, Lond.; Dr E. D. Seta, Roma.

T.—Dr. W. W. C. Topley, Lond.; Capt. N. B. Taylor, C.A.M.C.; Major G. Taylor, R.A.M.C.; Dr. A. H. Thompson, Lond.; Major P. Turner, R.A.M.C.

U.—University College, Lond., Provost of; University of Glasgow.

V.—Dr. L. Verney, Rome.

W.—Mrs. M. B. Wilson, Petworth; Mr. Welch, Durham; Dr. O. K. Williamson, Lond.; West London Medico-Chirurgical Society; Dr. C. W. Wirgman.

Y.—Dr. R. A. Young, Lond.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 1st, 1918.

Date.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 25	...	91	65	42	47	48	Overcast
,, 26	0·04	117	65	42	46	47	Overcast
,, 27	0·10	92	65	43	46	47	Overcast
,, 28	...	55	50	41	43	44	Overcast
,, 29	...	85	54	40	42	44	Cloudy
,, 30	...	98	56	43	45	48	Overcast
May 1	...	63	49	42	43	47	Cloudy

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.

Notes, Short Comments, and Answers to Correspondents.

COLONIAL HEALTH REPORTS.

Barbados.—Mr. T. E. Fell, the Colonial Secretary, reports that the population of the island, according to the latest available estimate, totals 184,259—78,959 males and 105,300 females. The birth-rate per 1000 in 1916 was 32·2 and the death-rate 22·7; illegitimate births were 65 per cent. of the total births. Of the 4152 deaths recorded 1420 were of children under the age of one year.

The admissions to the General Hospital during the year numbered 2442, and there were 189 deaths; the out-patients numbered 37,118. In the Lazaretto the average daily number resident was 134; there were 22 admissions and 8 deaths, and the average stay of those who died was 9·3 years.

Uganda.—It appears from the Blue-book that the population of this Protectorate in March, 1917, was estimated at 2,954,861, including 809 Europeans and 3548 Asiatics. During 1916 the conditions of general health were satisfactory.

The number of cases treated in Government hospitals and dispensaries was 75,537; there were 553 deaths. The mortality was considerably greater than in the previous year, owing mainly to plague epidemics. These broke out at Kampala and Port Bell towards the end of September and at Jinja at the beginning of October. Up to Dec. 31st (1916) 213 cases, with 193 deaths, were recorded in Kampala township and environs, whilst 25, with 23 deaths, were registered at Port Bell, and 63 cases with 54 deaths at Jinja. The disease was introduced probably through the medium of infected rats in cargoes of seed-cotton from the endemic plague areas of the Eastern Province. Immediate preventive measures were instituted by the sanitary authorities, including inoculation of the inhabitants of the affected areas with Haffkine's serum. Pickets were posted also on all roads radiating from the epidemic centres to control the movements of travellers and merchandise. The precautions taken were instrumental in confining the incidence of the epidemic, and, except for sporadic cases, the outbreak was overcome before the close of the year. It was possible also to keep the large number of troops and military porters who passed through the infected ports entirely free from plague. Diagnosis showed that the disease contracted was, in most instances, of the septicæmic type, though a few cases of pneumonic plague occurred during the Jinja outbreak.

The numbers of cases and deaths under head of sleeping sickness have dwindled almost to a negligible quantity. The clearings made to exclude the tsetse-fly from ferries and ports on recognised waterways have been maintained, but opportunities for independent research with reference to this disease have been nullified in consequence of the seconding of all available medical officers for military duties.

Two epidemic outbreaks of small-pox occurred during the year, one in a remote part of the Eastern Province and the other in the Western Province. 54,686 vaccinations were performed in 1916, as compared with 128,689 during the previous year.

PRIMERS OF FIRST-AID AND NURSING.

Mr. Dhanjibhai H. Mehta, L.M.S., medical officer to the Baroda State, has published (Luhana Mitra Press, Shiyapura. Price 4 annas) an Address on the *Necessity of Studying Ambulance Nursing and Home Hygiene* delivered before high school students in India. Mr. Mehta claims that the ability to render immediate help in case of need should be part of the training of any well-bred person. Ambulance teaching, without making doctors, enables its possessor to meet the accidents of every-day life and aids him in appreciating the value of hygienic regulations.——A new edition, the thirty-second, of the official handbook of the St. John Ambulance Association, *First Aid to the Injured*, has just been revised by Sir James Cantlie and issued by the Association, St. John's-gate, Clerkenwell, E.C. Price 1s.——For those who intend to take up nursing as a profession *Practical Surgical Nursing for Probationers* (London: Poor-Law Publications, Limited. Pp. 136. Price 3s. 6d.), by Miss Seymour Yapp, will be found a useful guide to a special subject. Miss Yapp, who is matron to the Lake Hospital, Ashton-under-Lyne, has had several years' experience as a teacher of nurses, and her descriptions of common operations which have been revised by Dr. George Richmond, medical superintendent of Lake Hospital, are the embodiment of her experiences written in a terse and clear style. The lectures include some elementary lessons on bacteriology.——*Clinical Notes for Probationers*, by Félice Norton (London: The Scientific Press, Limited. Pp. 136. Price 1s. net) is another book for nurses in training, which aims at teaching the probationer how to apply at the bedside the knowledge gained in the lecture-room. As a help to practical work the little book should fill a useful rôle. It deals with surgical and medical nursing, accidents, emergencies, drugs and their action, and contains a short glossary of technical terms.——*The Midwives' Pronouncing Dictionary* (94 pages, same publishers and price) is now in its second edition, and a number of new words have been added, especially the names of gynæcological operations and instruments required for their performance.

THE CARE OF DEFECTIVES IN SUSSEX.

AT the annual meeting held recently of the Guardianship Society satisfaction was expressed in the report at the larger number of public authorities from whom cases were received, marking, as it did, the usefulness of the society and the wider recognition it was obtaining.

The object of the Guardianship Society, which has its headquarters at 7, St. George's-place, Brighton, is the care and supervision of mentally and physically defective persons by (1) boarding them out in carefully chosen families; (2) assisting them to obtain training and employment suitable to their capabilities; (3) visiting them and taking a friendly interest in their moral and material welfare. For nearly 20 years the society has been dealing with such cases in the county of Sussex, the present honorary secretary being Miss Grace Woodhead, and the procedure is similar to that successfully applied to defectives and the mentally infirm of all ages in Scotland, France, and elsewhere on the continent. Patients are placed under the care of a respectable family, generally of the working class. A visitor visits them monthly and pays the maintenance allowance (about 10s. a week per case). Employment is found for those able to work and their earnings (less pocket money) are deducted from the maintenance charge. A doctor visits and reports quarterly and attends at other times if required. Experience of the working of this system has demonstrated that boarding-out appears to suit some cases better than either supervision or institutional care. The control is more effective than when under supervision, while the life is more natural than in an institution—more free from the taint of pauperism and less costly. It is worthy of note that some of the cases now actually under the care of the society are victims of the London air raids.

The total number of cases dealt with during the year was 346 (of whom 213 were fresh patients), as compared with 247 in the previous year; and the number of persons under the society's care at the end of the year was 179 as compared with 133 at the end of 1916. The number of certified patients under the Mental Deficiency Act had increased to 36, and the industrial class for defective children had been continued successfully. The number of sailors' and soldiers' children boarded out had increased during the year from 27 to 57. Commenting on the growth of the movement, the chairman, Mr. J. A. Nix, J.P., remarked that for the last quarter of 1917 the income received for cases was over £1000, while two or three years ago the income for the half-year was only about half that amount. A graceful tribute was paid to the officials, who were warmly thanked, particular mention being made of the work of the honorary secretary.

DISABLED SOLDIERS AID COMMITTEE.

MEDICAL men are being appealed to by the Disabled Soldiers Aid Committee, of 42, Ebury-street, London, S.W. 1, to help in the committee's war envelope industry, by contributing the cast-off papers and periodicals from their consulting-rooms. What happens in connexion with the scheme is this. The committee send and fetch all papers and periodicals which can be given to them; these they have cut up into the required shape by their printer and then they are handed over to the disabled soldier, who gums and puts them together ready for use, earning something like a pound a week by his work. The committee at 42, Ebury-street, control the entire scheme, and sell the war envelopes to the public at a price which just covers the expense of the undertaking.

THE INFLUENCE OF NATIONALITY UPON THE MORTALITY OF A COMMUNITY.

THE Registrar of Records for the city of New York, Dr. W. H. Guilfoy, has made an interesting study (No. 18, Monograph Series, Department of Health) of the influence of nationality upon the mortality of a community with special reference to New York. He finds that a comparison of the crude death-rates of communities and countries may be made with a degree approaching fairness, with the necessary corrections for sex and age distribution. His conclusions are as follows:—

The death-rate among infants is favorably influenced by the presence of Russian and Austro-Hungarian Jews and of Swedes. The presence of English, German, Irish, and Italian parents serves to increase the infant mortality. The highest rates from congenital diseases among infants are found among infants of native, Irish, and German parents, all three being far above the average. The children under five years of age of American, Irish, and Italian mothers die in considerably greater numbers than those of other nationalities. The death-rate from respiratory diseases of infants of Italian mothers is from two to three and a half times that of children of all mothers of other nationalities. The mortality from all causes at other age-groups is found to be highest among the Irish, German, and English and native males. The rates among the Italian, Russian, and Austro-Hungarian males are considerably below the standard, and thus act favourably in producing a lower general death-rate. The Irish, German, and English males and females all show higher mortalities than the average. Irish, German, and English males and females tend to increase the general death-rate by reason of the high mortality shown from acute bronchitis and pneumonia. This last statement might be repeated in discussing the mortality from cancer. The German males show an exceedingly high mortality from suicide and the Irish males a mortality from accidental causes double that of all males and four times that of the Russian and Austro-Hungarian males.

The study throws an interesting light on certain of the habits of mind and body of the different nationalities.

THE WORK OF THE NATIONAL BIRTH-RATE COMMISSION.

NEARLY two years ago (THE LANCET, 1916, i., 1265) we commented upon the report of the Birth-Rate Commission instituted by the National Council of Public Morals, and expressed the opinion that the young men and women who are taking their part in the present struggle will become the parents of a generation not so selfishly frivolous as that into which they themselves were born. Much educational work remains to be done if this is to be brought about, and the National Council has decided to resume and reconstitute the Commission, referring to its consideration such matters as the following:—

1. The extreme and persistent fall of the legitimate birth-rate in the United Kingdom; and the causes and prevention of the illegitimate birth-rate.
2. The contemporary movements of population in the Dominions, and the proportional distribution of the sexes throughout the Empire.
3. The economic problems of parenthood in view of the rise of prices and taxation and their possible solutions.
4. The housing problem in relation to parenthood.
5. The present spread of venereal disease, the chief cause of sterility and degeneracy; and the further menace of these diseases during demobilisation.
6. The increased industrial employment of women of child-bearing age.
7. The differential or qualitative aspects of the present birth-rate.
8. The constitution and uses of the coming Ministry of Health as an instrument of racial reconstruction.
9. The need of a Census immediately after the war, and of a permanent anthropometric department in the Ministry of Health.

Coöperation in this colossal programme is suggested with the Depopulation Commission in France and the Federal Child-Welfare Bureau in the United States, and all communications with regard to it may be addressed to the Rev. J. Marchant, secretary, National Birth-Rate Commission, 20, Bedford-square, London, W.C.1.

ENDEMIC CRETINISM.

EVEN in Switzerland, where abundant opportunity for its study exists, the etiology of endemic cretinism has by no means been cleared up. The Medical Society of the Canton Berne is now offering prizes for the best essays dealing with the number of cretins living in the canton from statistical, environmental, and clinical standpoints. Professor Sahli and Professor Wegelin are the outside judges.

PERIPHERAL NEURITIS AFTER ANTI-TETANIC SERUM.

REFERRING to Captain S. C. Dyke's note on peripheral nerve lesions following the use of anti-tetanic serum, Dr. Leonard J. Kidd writes to call attention to Richardson's case of tetanus with multiple neuritis appearing after treatment by antitoxin, magnesium sulphate, and phenol (*Journ. Amer. Med. Assoc.*, 1917, i., 1611). The neuritis began in the arms three weeks after cessation of tetanic spasms, and then rapidly became generalised. Recovery followed. Richardson regarded the tetanotoxin as the most probable cause of the neuritis.

THE SOYA BEAN.

THE *Garden* of April 20th reports that a new use has been found for the soya bean beyond those described in THE LANCET of Jan. 15th, 1916 (p. 169). Professor S. Sato, of Japan, has prepared a non-inflammable and successful substitute for celluloid from the "glucine of the bean by coagulating it with formalin," and a company is being formed in Japan to prepare the product, which is to be called "Satolite."

THE V.A.D. STAFF OF A VOLUNTARY HOSPITAL.

IN his second annual report of the St. John Hospital, Southport, with 500 beds, being one of the largest voluntary hospitals in the country, Mr. W. C. Bentall, F.R.C.S., gives a striking testimonial to the efficiency of the voluntary staff. He writes:—

> It is difficult to write of the work which is really the backbone of our whole hospital—namely, the V.A.D. staff. The membership of the Volunteer Aid Detachments is very large, and there are few families left in the Borough of Southport from which help has not come. While many render continuous and whole-time services a still larger number, owing to home and business duties or the strain upon their health, put in parts of the day. Not a few fill the ordinary avocations of their life through the day and then work in the evening from 5 to 10 o'clock in the hospital. While these constant changes involve considerably more organisation by our lady commandants, and make our nursing staff appear unduly large, yet this method secures the greatest amount of help from the largest number, and has liberated not a few of our V.A.D.'s for other service in wider spheres abroad. By the careful arrangement of the lady commandants the necessary number of nurses for night and day duty has been provided throughout the year, and the regularity and assiduity of the work these nurses have done enables us honourably to take our share in the glory of the great V.A.D. work of the nation.
>
> It is well that attention should sometimes be drawn to the self sacrificing and almost unnoticed work of these voluntary helpers.

THE MEDICINE OF THE STAGE.

To the Editor of THE LANCET.

SIR,—I think Mr. R. W. Starkie is breaking a butterfly on the wheel in his reference in your issue of April 27th to the play *The Knife*. The sub-title is "A Warning," and this surely refers to the notorious abuses of the "clairvoyant" parasite's activities. It does not do to take the didactic drama too seriously, and one may grant a theme for presentation in a dramatic form for amusement and interest without accepting it as established, or even demonstrated, and still less as being intended to be either.

I am, Sir, yours faithfully,

Harley-street, W., April 27th, 1918. THOMAS D. LISTER.

EXPECTANT MOTHERS AND AIR RAIDS.

IT was reported on Monday at the meeting of the Metropolitan Boroughs Standing Joint Committee that the Local Government Board had agreed to a proposal of the Bethnal Green Borough Council to send expectant mothers to friends or relatives out of the raid area at the cost of public funds. This expenditure, however, must be borne by the borough council, as the maternity grant of the Local Government Board is not available for such a purpose.

CHAULMOOGRA OIL IN LEPROSY.

IN the *Indian Journal of Medical Research* for October, 1917, Sir Leonard Rogers states that a year's further experience has confirmed the fact that intravenous injections of the sodium salts of the fatty acids of chaulmoogra oil produce reactions in leprous tissues with breaking down of the acid-fast bacilli, reactions being followed by great improvement. The lesions have disappeared in 50 per cent. of cases treated within three years of the onset of the disease. The most active constituent of the oil having not yet been obtained in a pure state, Sir Leonard Rogers looks forward to further investigation on the same lines yielding still better results in the near future.

AN INSTRUCTIVE PLANT-FOOD EXHIBIT.

THE Natural History Department of the British Museum at South Kensington has already done excellent work in providing the public with free object-lessons on the relation of animal and plant life to health and disease. Such case exhibits as those illustrating the destruction of Army biscuits by insects, the relation to disease of the louse, tick, and house fly, the connexion of mosquitoes with malaria and yellow fever, of fleas with plague, and of the tsetse fly with trypanosomiasis, have had definite educational value. The latest addition is an exhibit of *plant-foods*, whose ready appeal to the public is indicated by the approving remark of a boy-onlooker, "Look here, Bill, this shows you what's what!" The plants in general use throughout the United Kingdom as foodstuffs are shown by actual specimens as well as enlarged models, drawings, and diagrams, food values being well indicated by strips of coloured paper pasted on grey cards. All the cards being on the same scale and the food constituents indicated by the same colour, comparison of energy and body-building values is easy. How the sensible housewife peels the potato is illustrated by a model indicating the food value of the skin and layer immediately beneath it, as well as the main starch reservoir inside. The nutritive parts of a wheat grain are demonstrated in a similar fashion. A graphic analysis of bread, showing the constituent protein, carbohydrate, and fat, in glass tubes, compels attention, as does also the equivalent food value of 4 ounces of bread in terms of sugar, its substitutes, and the various cereals. Information is given in simple language on the importance of vitamines, what foods contain them most abundantly, and the percentage of effective nutriment in the vegetables produced by the allotment-holder.

THE Bishop of Norwich having placed the episcopal palace at the disposal of the Red Cross Society, a V.A.D. auxiliary hospital with 40 beds has been formed.

E. D. S. (Rome).—The following may be found of use:—"Rations and Digestion," by W. Soltau Fenwick, M.D. (London Institute of Hygiene), 6*d*.; "Foods and their Relative Nourishing Value," by Professor W. H. Thompson (University Press, Dublin), 4*d*., 1917; "A Further Study of the Diets of Labouring Class Families in Glasgow in Wartime," by Margaret I. H. Ferguson (Proceedings of the Royal Society of Edinburgh), 6*d*.; "Feeding a Nation in Peace and War," by Professor D. Noel Paton (London: John Bale, Sons, and Danielsson); "The National Food Supply in Peace and War," by Professor T. B. Wood (Cambridge University Press), 6*d*.; "Food and How to Save It," by Edmund I. Spriggs, M.D., F.R.C.P. (Ministry of Food) (H.M. Stationery Office, Imperial House, Kingsway, London, W.C. 2).